THE IRON AGE

A Review of the Hardware, Iron, Machinery and [illegible] Trades.

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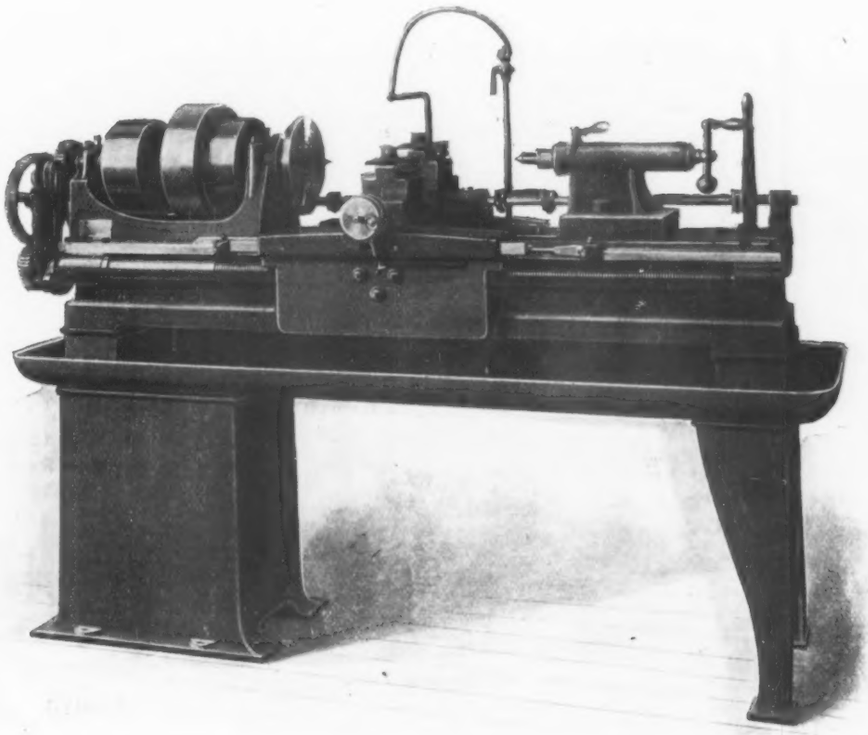
THURSDAY, MAY 1, 1902.

A New Automatic Threading Lathe.

The speed at which threads can be cut on an engine lathe is limited, not by the endurance of the tools or susceptibility of the stock to the tools, but by the skill and agility of the operator, and that is never equal to the cutting speed at which the work might be run, except in the case of large diameters. Especially is this true in threading up to or between shoulders.

The automatic threading lathe built by the Automatic Machine Company of Bridgeport, Conn., which is here illustrated, eliminates the human element above referred to by performing all of the necessary movements automatically after the work is dogged and placed between the centers, thus enabling the work to be done up to the full cutting speed that the stock will stand or the tools endure. This increases the output, and consequently cheapens the cost of such operations very materially.



A NEW AUTOMATIC THREADING LATHE.

Aside from its automatic features this tool must be considered as an engine lathe, and not confounded or compared with the screw machine *per se*. It possesses all the essentials of the former when set up for thread cutting, and as the provisions for turning are not present it becomes a special tool for rapid, automatic and accurate thread cutting, relegating what has hitherto required the services of a skilled lathe man to the care of the operator or machine driver.

The machine is furnished with oil tank, chip pan, pump and piping for continuous lubrication of work and tools in operation. The tools used are the same as for engine lathe work, and nothing special is otherwise required. When once belted up it is ready for immediate use with the tools which may be found in any shop. It is especially convenient for internal threading, and works to a precision of 0.0001 inch, while for threading rapid pitches and multiple threads of worms or screws, its speed and rapidity are beyond previous experience.

This somewhat remarkable tool is an example of what may be accomplished by reducing a machine to its lowest terms, by which we mean that it furnishes an illustration adverse to the tendency to combine in one machine so many possible operations that the highest skill must be employed to operate it, when there are better things for the trained workman to do than to attend the machinery he has built.

So far as it resembles a thread cutting engine lathe little need be said of those familiar features, such as lead screw geared to head spindle, carriage controlled by lead screw, &c. The spindle is fitted with friction clutch pulleys which run in opposite directions, the clutches being fast to the spindle and actuated by the ordinary sliding spreader and yoke actuated by mechanism attached to a back shaft, B.

This back shaft, Figs. 2, 3 and 5, is not intended to revolve continuously, although the friction pulley I at the head end tends to rotate it whenever it is permitted to do so, by the tripping of an escapement caused by the carriage coming in contact with a collar, C, adjustably fastened to the shaft, thus imparting an end motion to the shaft. The friction pulley is supported on a sleeve having its bearing in the head block casting, the opposite end of the sleeve carrying a cam, D, which actuates the clutch yoke.

Tripping of the escapement permits the shaft to make a half revolution, when it is arrested until the end motion of the shaft in the opposite direction occurs, when it again releases and makes half a revolution. It will be

seen that the rotation of the back shaft commences an instant before the cam acts on the clutch yoke and clutches, and while this movement is taking place the tool posts L L are converging or diverging, according to the direction of the cut—*i. e.*, whether the machine is set for a right or left hand thread. The back shaft is spline grooved for its entire length, and passes through the sleeves with the spline carried by the sleeves fitting into the groove. The shaft also passes through the carriage, over which it is free to slide.

Contained within the carriage is a double eccentric cam, E, rotated by the shaft B, to which it is feathered, and by suitable mechanism the tool posts are thus caused to approach or recede from each other. Each tool post has its own cross feed screw, adjustable independently, and attachable at the will of the operator to a finely cut ratchet disk, F, Figs. 1 and 4, to which movement is imparted (the cut feed) by a pawl controlled by a sliding bar passing through the carriage apron and coming in contact with adjustable blocks, H, clamped to the bed at either end of the carriage travel. When a cut is made to the required depth it can go no deeper because of a movable slide on the periphery of the ratchet disk, which prevents the pawl from entering the notches of the disk. Once set the work may be duplicated *ad libitum*.

The time of cutting different threads is shown by the accompanying table:

D = Depth of thread.
N = Number of threads in 12 inches.
F = Feed, thickness of chip per cut.
R = Cutting speed in R. P. M.

Formula: $\frac{D \times N}{F \times R}$ + 50 per cent. = guaranteed time in minutes.

Diam. of screw.	Pitch.	D. Depth of thread.	N. Number of threads in 12 inches.	F. Depth of feed per cut.	R. Cutting speed in R. P. M.	Minutes.*
¾	8	0.0625	96	0.008	127	10
1	8	0.0625	96	0.008	96	12
1¼	8	0.0625	96	0.008	76	15
1½	6	0.083	72	0.008	64	18
1¾	5	0.100	60	0.008	55	21
2	4	0.125	48	0.008	48	24
2¼	3	0.1666	36	0.008	42	28

* 50 per cent. added.

Lake Mining News.

DULUTH, MINN., April 26, 1902.—Around the lake shipping is very active, and the vessels of some independent owners, who stood back for 80 cents, are now busy as the rest. A general strike among tugmen at all lake ports is having a little effect upon dispatch at some points, but the strike can only end, as the strikes of its particular class must, in the defeat of the strikers.

At the new Oliver-Snyder mine in the western Mesaba they are sinking a second shaft, and the first, which has been very much bothered by water, will be heavily equipped. The mine will not make large shipments this year. There comes from Chicago a story to the effect that the lease on unopened ore in section 32-57-22, sold last week for a bonus of $525,000, is to be made the basis of a corporation that will "fight the steel trust." This is certainly important—if true. Mining men here have their doubts, however. It will take more of a mine than this property can prove to be to permit anybody to "fight the steel trust." There is a continuance of the activity in the far western Mesaba, where this property is located. Five drills will be worked on a tract owned by the Watson Bros. of Minneapolis, in township 56-25. In sections 1, 2, 3, 4 and 10, same town, considerable work will be done by others. In section 33, township 56-25, on Swan River, some pits are being sunk. All along from there to section 1, township 56-23, work is in progress or contemplation, the Eastern Minnesota being in charge of much of it, and much more being by parties new to iron ore exploration. There are bound to be many disappointments. Some costly operations have already failed and are abandoned.

Shipments have commenced from the Lincoln, which mine Jones & Laughlins have been developing for the past six months. They have a big deposit and good ore and will ship about 100,000 tons this year to their own furnaces. Their Grant mine, a State lease in 58-19, will also be a considerable shipper this year.

Steam shovel mines are commencing operations. Their outputs will be exceedingly heavy. The Mountain Iron will ship about as last year, 1,000,000 tons; the

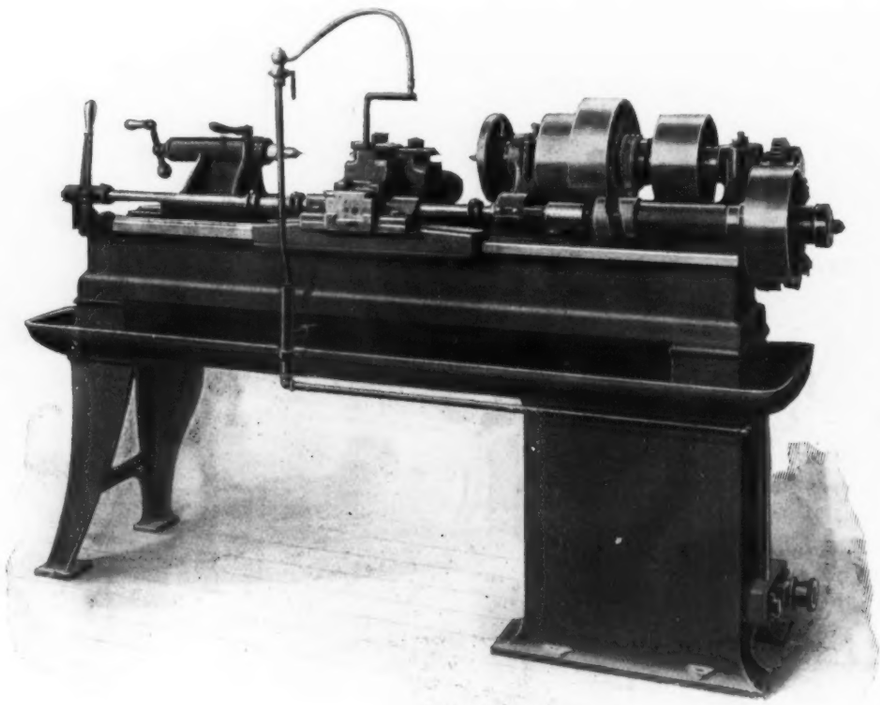


Fig. 2.—Rear View.

A NEW AUTOMATIC THREADING LATHE.

Mahoning more than last, probably above 1,000,000 tons; the Stevenson as much as possible. Three shovels are stripping there now. The Fayal should ship 1,500,000 tons, partly from underground. The Biwabik has been slated for about 1,000,000 tons. They talk of several hundred thousand tons from the Sauntry and small amounts from the others of the Virginia group. The Stevens will be a shipper late in the season. The Sellwood-Roberts interests are opening a mine near Hibbing to be called the Columbia, and have a shaft already quite deep in ore. They will make shipment this year. Present indications are for half a dozen new shippers close to Hibbing this season.

S. S. Curry of Ironwood, who is well versed on the Marquette and Gogebic ranges, was for years president of the company controlling the Norrie group and whose opinion is entitled to much weight, stated a few days ago that he had never known a case where exploration of a property in the known ore bearing formation did not result favorably if long enough continued. Perhaps Mr. Curry would wish to have it understood, on properties where no mines were found, that explorations did not extend far enough. His statement is very sweeping and will probably be vigorously denied by almost every man in the business.

At Crystal Falls the Tobin mine seems to be showing up well. It has some 15,000 tons of good ore on the dump and with depth the lens seems to widen. Drill exploration will be done by the Bristol Mining Company on the old Quincy, adjoining them, where the indications are favorable.

The Cleveland Cliffs Company's new furnace at Marquette is progressing steadily and will be blown in the coming winter. At the same time their retorts and chemical works will be in operation. This will be a very large furnace, 200 tons daily of charcoal iron, besides 50 carbonizing furnaces and a chemical works. The furnace and three stoves are about complete. Some 200 men will be employed about the furnace and 500 more in the timber and making fuel. D. E. W.

George C. Keene & Co. of Cincinnati, Ohio, manufacturers of sheet metal working machinery, who have been for many years located in what is known as the "Bottoms" district of the city, have been compelled, owing to their rapidly increasing business, to seek larger quarters; and have secured a piece of ground adjoining the old power house of the Walnut Hills cable road, upon which they will at once begin the erection of a new plant, 80 x 70 x 88 feet, part one story and part two stories. The new building will be provided with the latest and most improved machines and equipment, including traveling cranes, &c. A gas engine will supply power for the machinery. The new works will be completed within 90 days.

The Executive Committee of the National Blast Furnace Workers, embracing blast furnace labor in the Mahoning and Shenango valleys, have decided to extend the date of demanding an eight-hour day to June 1 instead of May 1. It can be stated that this demand will be vigorously opposed by the blast furnace operators, and it is not believed it will ever go into effect.

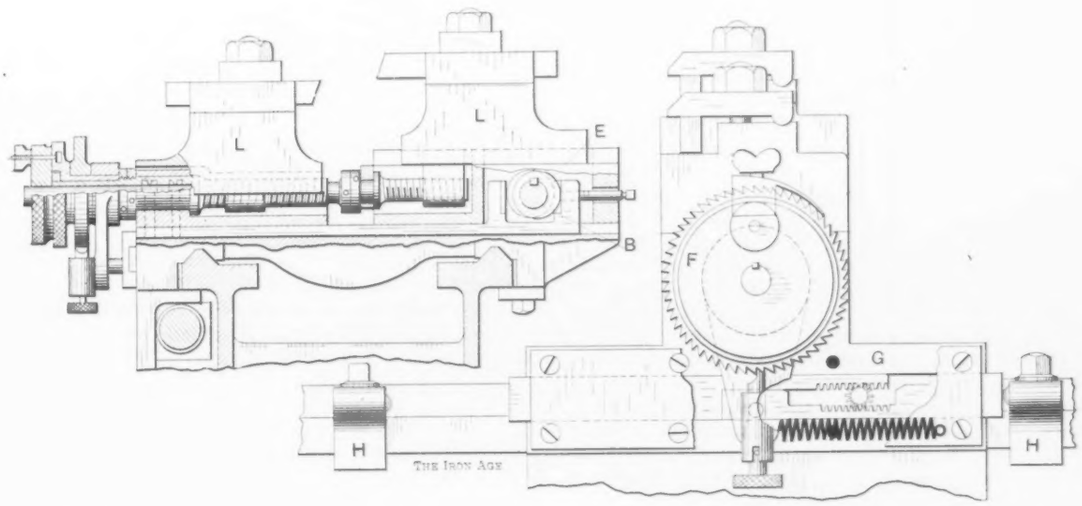


Fig. 3.—Cross Section through Tool Posts.

Fig. 4.—Sectional Front Elevation of Tool Post.

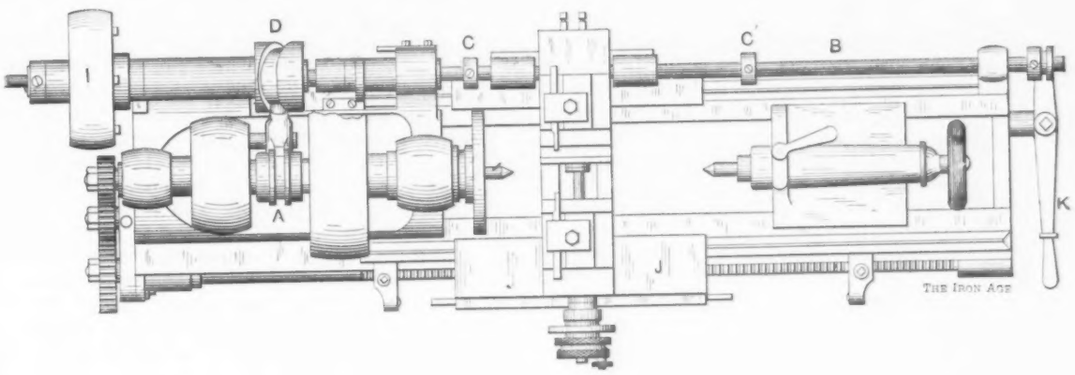


Fig. 5.—Plan.

A NEW AUTOMATIC THREADING LATHE.

A Comparison of British and German Trade.

LONDON, April 12, 1902.—A well-informed correspondent of the *Times* has, in a recent issue, been drawing attention to the growth of German commerce during recent years, and drawing an instructive and graphic comparison between the trade of Germany and Great Britain. The facts garnered by this industrious writer are well worth serious consideration by business men in all parts of the world. I propose, therefore, briefly to cover the ground of the article in question.

Value, Not Volume, a Test of Commercial Prosperity.

Before, doing so, however, it is necessary to point out that a comparison of mere statistics is not necessarily a true index to the relative prosperity of the two countries. One firm may, in the course of the year, do an enormous turnover and reap but little profit; another, on a similar turnover, may achieve eminently profitable results. It is precisely the same with nations as with large business houses. I confess I do not see how it is possible accurately to ascertain the actual prosperity of one country as compared with another. In this country we know roughly what are the profits obtained by the mercantile community by the return of the income tax. But income tax appears to be a peculiarly British institution. Again, the returns of pauperism must be uniform in their operation in all countries if anything like a true line can be drawn in this regard. More important than all of these considerations however, is the great problem as to the extent of the home trade done by each country. Bearing upon this, too, is the question of wages. It is, I think, obvious that where wages rule high there is more effective demand inside the confines of that particular locality, and consequently a larger and more profitable home trade transacted.

This is peculiarly the case in drawing any comparison between German and British trade, because we know, as a matter of fact, that during the past decade German foreign trade has been largely experimental. Germany has been throwing out its tentacles into all parts of the world, gathering the trade, building up trade connections, and seeking at all hazards to achieve financial independence. In thus laying down the frame work of future commercial greatness it will, I think, be granted that this has cost an enormous sum of money. Whether as a mere matter of bookkeeping this goes down to capital outlay or to working expenses, the economic effect upon Germany is precisely the same. On the other hand, however, British foreign trade is largely a matter of settled connection. The commercial machinery was more or less perfected by the forerunners of the present British generation, and, in consequence, foreign trade to this day comes more cheaply to the British exporter or importer than probably to any other trader in the world. The real test, therefore, is not to be found in the volume of trade done as in its value; and this, I fear, is a test which cannot be applied in view of the paucity of the essential statistics. And in this connection, too, we must not overlook the changing policies of the great industrial countries of the world. I have just said that value rather than volume is the true test of prosperity. Yet the observant traveler in the United States cannot fail to be impressed with the view almost universally held by American business men that with perfected automatic machinery, the first essential is to secure a regular and increasing output of merchandise. How far this is a sound commercial axiom or how far it is merely a modern phase of the present competitive era I cannot state. At the same time there is no escaping from the conclusion that if a country is economically strong enough to maintain an enormous output and to distribute that output over the face of the world, there is no reason why, in the long run, it should not beat down its competitors and then secure the market to itself and at its own prices. Be that as it may, however, I think it necessary, in placing before our readers any comparative statistics, to remind them of the foregoing considerations.

Increase in Population.

First, then, it may be assumed that if the population of any country grows rapidly, there is employment fairly easily to be obtained. If this be not so, it follows that the unemployed will either grow to such large numbers as will create a revolution, or emigration will increase, *pro rata*, with the increase of the population. It is fair, then, to assume that some idea of the prosperity of Great Britain and Germany can be gleaned by a glance, first, at the population over a number of years; and, secondly, by emigration statistics. Here then are the figures dealing with the United Kingdom and the German Empire under these two heads since the year 1880:

Increased Prosperity Shown by Increased Population.

	United Kingdom.		German Empire.	
July 1—	Population.	Increase, five years.	Population.	Increase, five years.
1880	34,900,000	.....	45,100,000	.....
1885	36,000,000	1,100,000	46,700,000	1,600,000
1890	37,500,000	1,500,000	49,200,000	2,500,000
1895	39,100,000	1,600,000	52,200,000	3,000,000
1900	40,900,000	1,800,000	56,000,000	3,800,000
Increase, 20 years	.....	6,000,000	.....	10,900,000
Increase, 20 years, per cent	17	.....	.....	24

Increased Prosperity Shown by Decreased Emigration.

	Emigrants from the United Kingdom.	Emigrants from Germany.
Five years ending 1885	.....	857,287
Five years ending 1890	1,266,226	485,136
Five years ending 1895	978,574	402,567
Five years ending 1900	764,216	127,308

What, then, are the commercial reasons which have led to the marked increase in German population and to the diminishing number of emigrants? The reasons advanced are stated thus:

"A strong and hardy race, frugal, prolific and intelligent, living in a land with fertile soil, abundant minerals, large rivers and open seas in the heart of Europe; a people trained to orderly habits and discipline by a rigid military system, and mentally developed by generations of excellent education; a nation given to book learning and study, reflective and energetic and industrious by temperament, sending its sons abroad every year by scores of thousands to return with knowledge gathered in foreign schools, or to remain as colonists and commercial connections in all parts of the world—such a people could not in the long run fail, under modern conditions, to develop into a great industrial and trading community. For two generations, indeed, war and poverty impeded its progress. From the days of Koenigsberg until the wiping out of old scores in Versailles Germany had neither the time nor the money to devote herself to those pursuits which in that same interval had made England so great and so powerful. But as soon as Germany had acquired that strength which unity and peace always give, the full development of her resources could begin in earnest. From 1870 onward she advanced with rapid strides, the setback occasioned by the crisis of 1873-75 notwithstanding; and especially since the advent of her present ruler did her strides become those of a giant."

The Kaiser a Business Emperor.

Great credit is ascribed by the *Times* writer to the commercial acumen of the Kaiser. We are told that "Unostentatiously he seems to have made the interest of German business the keynote of German foreign policy. In his earlier days, when he acquired his nickname of Reise Kaiser—his father being the Weise Kaiser and his grandfather the Greise Kaiser—his perambulations all over Europe advertised Germany, a fact of which German traders were not slow to take advantage. It is no coincidence that ever since his pilgrimage to the Holy Land and his visit to the Sultan German trade and enterprise south of the Balkans and in Asia Minor have so greatly grown. His advances toward France, whatever may have been his other motives, have certainly had for their aim to overcome French prejudice against German goods, and became particularly effective when Germany had dexterously taken advantage of the 1900 exhibition to demonstrate before France and all the world her industrial renaissance. His attitude toward Great Britain during the Boer war, in spite of popular sentiment among his subjects, probably has its business side; so certainly has the mission of Prince Henry to the States, because it is

sure to minimize the tariff friction between the two countries. William II is, indeed, a business emperor; he is credited with that same mercantile acumen which has enabled his friend, Leopold II, to amass a vast fortune, beside stimulating Belgian trade to high development."

Personally I cannot help thinking that the Kaiser's influence is here greatly exaggerated. Just as one man cannot set bounds to the march of a nation, neither can one man either retard or materially expedite commercial growth. That the Emperor has lent official prestige to German commercial efforts cannot be gainsaid; but it may be presumed that this has been as much the result of pressure brought to bear upon him as of a spontaneous desire on his part to make his country commercially prosperous. Bismarck was in every respect a greater man than the present Emperor. But he was in spirit, to the very last, a "Landjunker." When agrarian and commercial interests clashed Bismarck's influence, if anything, favored that agrarian stock from which he himself had sprung; but notwithstanding this German commercialism spread by leaps and bounds long before the present Kaiser was securely in the saddle. Notwithstanding appearances to the contrary, the world of commerce is essentially republican in its methods. Nor do I think that the military training of the Germans makes for commercial progress to anything like the extent suggested. Englishmen are not subjected to any military training whatsoever, and yet they have contrived to be the strongest factor in the world's markets. Americans are free from the military influence, are indeed resolutely set against anything in the nature of a military empire, and yet have been even more successful of recent years than the Germans themselves. It is perhaps more correct to ascribe much of German success to the theoretical and practical training obtainable in German techincal colleges. This is particularly true in the electrical world. Further, it may be remarked that Germans are by habit scholarly and intellectually methodical. There was a time, not so far removed from the present, when force and push counted for more in commerce than accurate knowledge painfully acquired. We are, however, now in an age when high education is more truly wedded to industry than ever before. In the German Rhenish provinces there were at once immense mineral resources and efficient education ready mutually to help each other at the psychological moment when the time had come for German foreign commercial expansion. The result is succinctly set forth in a few terse passages which I venture to quote:

Commercial Statistics.

"When we come to examine in detail the statistical data illustrating Germany's commercial progress we find on all sides evidence of vigorous expansion. Growth is indicated everywhere, and in many cases an almost incredible degree of vitality. The object of this paper, as already stated, is to discuss this growth not merely by itself, but in its bearing upon British trade; hence subsequent tables give a considerable variety of figures for Germany and Great Britain side by side, and must for that reason be inserted further down. But they may here in part be anticipated by the quotation of a few facts. Thus we find that in the last 25 years German exports have grown from £122,000,000 to £220,000,000, or 80 per cent. In ten years' time her exports of machinery have grown by not less than 235 per cent., from £3,400,000 to £11,400,000. Her iron production has gone up from 4,658,000 tons to 8,143,000 tons since 1890, or 76 per cent.; the value of all minerals produced was £36,000,000 in 1890 and £52,000,000 in 1899. As recently as 1896 she owned less than 2,000,000 tons of shipping all told; to-day she has well over 2,500,000 tons gross. It is interesting to see the general increase in commercial activity reflected in the postal statistics; 1,634,000,000 letters were carried in 1890; ten years later the number had been swelled to 2,724,000,000. In 1900 804,000,000 passengers were carried on the railways; ten years before but 426,000,00. In 1875 the total volume of German foreign trade was just under £300,000,000; in 1900 it was practically £500,000,000."

And let me add to the foregoing the following tabular statement, showing the foreign trade transacted by the United Kingdom and the German Empire in various years from 1875:

British and Foreign Trade Compared.—Millions Sterling.

	United Kingdom.			German Empire.		
Year.	Imports.	Exports.	Total.	Imports.	Exports.	Total.
1875	373.9	223.4	597.3	176.5	122.7	299.2
1895	416.7	285.8	702.5	212.3	171.2	383.5
1896	441.8	296.4	738.2	227.9	187.7	415.6
1897	451.0	294.2	745.2	242.8	189.3	432.1
1898	470.5	294.0	764.6	272.0	200.5	472.5
1899	485.0	329.5	814.5	274.8	207.6	482.4
1900	523.0	354.3	877.4	277.8	220.7	498.5

1875-1900.
In the United Kingdom exports increased 54 per cent., or from £6 2s. 9d. to £7 2s. 4d. per head of population.

1875-1900.
In Germany exports increased 80 per cent., or from £2 17s. 6d. to £3 18s. 8d. per head of population.

It will be observed that the foregoing figures are, after all, not an exact comparison, as a superficial glance would seem to indicate, inasmuch as no account is taken of the "invisible profits" of the ship owners. I remember some years ago that Sir Robert Giffen estimated these profits at between £120,000,000 and £150,000,000. Other statisticians have, however, regarded this as too liberal an estimate, but probably if we put it at £100,000,000 we are not far wrong. I will return, however, to this point a little later on. The significance of the growth of German exports compared with English exports will be at once perceived. In 1875 Great Britain exported 82 per cent. more than Germany; in 1900 the ratio was 61 per cent. But the application of percentages to uneven quantities is, of course, misleading. If we take the absolute figures, it will at once be seen that British exports over the period in question showed an increase of £129,000,000, against Germany's increase of £98,000,000. Indeed, so strong is the lead that if the rate of progress of both countries were to remain what it is now it would take Germany upward of a century to overtake Great Britain in its export trade per capita. Some of these exports are, of course, of real interest to readers of *The Iron Age*. The following figures represent the comparative exports of coal, machinery, iron and steel, &c.:

Exports of Coal, Machinery and Iron.
(The figures represent millions sterling.)

	United Kingdom.			German Empire.		
	1891.	1900.	Per cent. + or −	1891.	1900.	Per cent. + or −
Coal	18.9	38.6	+ 105	5.9	10.8	+ 83
Machinery	15.2	18.2	+ 20	3.4	11.4	+ 235
Iron and steel	26.8	32.0	+ 20	9.5	17.3	+ 82
Wrought copper and brass	1.8	1.5	− 16	0.5	1.6	+ 220

In comparing the metallurgical work done during the last 25 years by Germany and Great Britain one cannot fail to be struck with the fact that, while England has remained practically stationary, German activities in all departments of the metal trades have been both abnormal and successful.

Mineral Statistics.

The Englishman will, however, say, and with truth, that it is much easier to add to a trade valued at £9,500,000 than to a trade valued at £26,800,000. This, of course, is true. It must be none the less disquieting to any thoughtful Englishman. But when in addition to German competition the Englishman remembers the commercial advent of America, it will be surely time for him to look facts a little more directly in the face than heretofore. Before leaving the question of minerals, it is as well to bear in mind what was the actual production of the two countries during the past decade. The following figures supply the information:

Value of Minerals and Coal Produced.

	United Kingdom.	Germany.	United Kingdom.	Germany.
Years.	Minerals (coal included).		Coal in tons.	
1890	£100,802,000	£36,282,000	181,600,000	70,237,000
1895	76,633,000	35,323,000	189,661,000	79,169,000
1896	78,738,000	39,334,000	195,361,000	85,690,000
1897	81,714,000	42,964,000	202,129,000	91,055,000
1898	87,701,000	46,944,000	202,054,000	96,309,000
1899	117,309,000	52,581,000	220,094,000	101,639,000

Iron Production.

Years.	United Kingdom. Tons.	United Kingdom. Value.	Germany. Tons.	Germany. Value.
1890	7,904,000	£24,140,000	4,658,000	£13,389,000
1895	7,703,000	18,464,000	5,464,000	11,847,000
1896	8,659,000	20,697,000	6,372,000	14,983,000
1897	8,796,000	21,161,000	6,881,000	17,507,000
1898	8,609,000	22,613,000	7,321,000	18,937,000
1899	9,421,000	32,661,000	8,143,000	22,793,000

Increase in German production, ten years, 76 per cent.
Increase in British production, ten years, 17 per cent.

British and German Shipping.

I referred earlier to the "invisible profits" of the ship owners. It is notorious that during the last few years German competition both upon the Atlantic and in the far East has made itself felt in Europe. This competition, however, is more apparent than real. During the last five years, while Germany has increased her tonnage by 490,000 tons, the British merchant fleet has grown by 918,000 tons, and in any event the British gross tonnage is 14,000,000 tons, or five times as much as Germany's. Further, the proportion of freight vessels in the British fleet is much larger than among Germany's, whose tonnage has been mostly added to in that very restricted department, "fast tonnage." The shipping of both countries since the year 1896 may be set down in the following comparative table:

Shipping of United Kingdom and Germany Compared.

Years.	Number of vessels. United Kingdom.	Number of vessels. Germany.	Gross tonnage of vessels. United Kingdom.	Gross tonnage of vessels. Germany.
1896	20,796	3,592	13,146,999	1,969,238
1897	20,501	3,678	13,159,560	2,059,948
1898	20,404	3,693	13,380,630	2,189,508
1899	20,196	3,713	13,746,216	2,317,536
1900	19,982	3,759	14,064,152	2,459,389

In five years the British tonnage increased 7 per cent., while the German tonnage increased 25 per cent. It will thus be seen that with such a vastly predominant merchant service the "invisible profits" of British ship owners must be enormously greater than those secured by their German competitors. If, therefore, these figures were added to the export statistics of both countries it would considerably widen the gap between Great Britain and Germany. The writer in the *Times* rightly attaches considerable importance to the growth of post office and railway business as an index to the trade activities of the two countries. These may be summarized as follows:

Growth of Post Office and Railway Business.

	United Kingdom.	Germany.
Letters dispatched, 1890	1,649,750,000	1,634,447,000
Letters dispatched, 1899	2,246,800,000	2,274,294,000
Increase, ten years	597,050,000	1,089,847,000
Letters per capita, 1890	44	33
Letters per capita, 1899	55	49
Increase per capita, ten years	25 per cent.	48 per cent.
Telegrams dispatched, 1899	93,515,124	37,006,996
Railways, mileage 1890	20,073	25,927
Railways, mileage 1895	21,174	28,025
Railways, mileage 1899	21,700	30,373
Increase railway mileage, ten years	8½ per cent.	16½ per cent.
Passengers carried (millions):		
1890	817.7	426.1
1895	920.8	592.3
1900	1,106.7	804.7
Increase passenger traffic, ten years	37 per cent.	89 per cent.
Cost of railways per mile	£54,400	£12,680

Only two comments are necessary on this point. In the first place, note the great difference in the telegrams dispatched in the United Kingdom as compared with Germany, and with this important fact, bear in mind that the Britisher on the average posts 55 letters to every 49 posted by his German *confrère*. The second comment is that the great increase in German mileage is largely due to the extension of light railways. This will be seen at once by looking at the comparative costs of English and German railways per mile.

I doubt if any general conclusion can be drawn from the foregoing useful statistics and facts. It is, of course, clear that Germany, geographically situated as she is right in the very heart of Europe, with good waterways and an improving railway service, with Russia on the east, with Austria on the south and Italy on the southwest, with the great port of Hamburg in the north—with all these advantages it was inevitable that German commercialism should increase by leaps and bounds. But there is nothing peculiar in this. Great Britain, wearied Titan though she may be, seems to hold her own remarkably well, notwithstanding her battalions of literary critics. America, coming later into the market, has shown an even greater aptitude for the transaction of great business affairs. Other countries, too, are commercially busy and are seeking, decade by decade, more and more to supply themselves with their own wants; and yet, in face of all this, Great Britain, America and Germany are enormously increasing their foreign trade. What does it all mean? Surely that virgin markets have not only been discovered, but are being more thoroughly worked. China, Japan, Siberia, the Balkan provinces, Eastern and Western equatorial Africa, South America, are all becoming customers of the manufacturing countries in greater degree year by year. Thus, while the smaller industrial countries have practically held their own, it has so chanced that these three great countries have laid themselves out to supply the needs of these virgin markets. This cannot go on indefinitely. It will doubtless last our time, and posterity must settle its own problems. In the competitive warfare of the near future it is clear, however, that Germany will be a formidable competitor. Her banks are now her own; her resources are such as will enable her to wait patiently for more remunerative trade; the law of diminishing terms hits Great Britain more than Germany; so that on the whole it were well, both for Englishmen and Americans, to take stock of the Teuton, and be ready to match his products with something as good, if not better.

S. G. H.

Shenango Valley Notes.

SHARON, PA., April 28, 1902.—The National Malleable Steel Casting Company are making extensive additions to their large plant at Sharon, Pa. The new skelp mill of the Sharon Steel Company will be erected this spring, the machinery being on the ground, and the building is rapidly nearing completion.

It is believed in New Castle that the recently completed Mahoning Railway, an electric line connecting New Castle and Youngstown, will be an ore carrying line as well as do a freight, express and passenger business. It is chartered in Pennsylvania under the general railroad law, and has been built the entire distance from Youngstown to New Castle on easy grades.

The New Castle Water Company will make extensive additions to their works this summer. The water of the Shenango River is no longer the principal source of supply. The clearer and purer water of the Neshannock will be used for the supply of the new residence districts in the northern part of the city.

A very serious strike of the building trades is on at South Sharon. Hundreds of houses are standing in a state of partial completion, just at a time when there is a tremendous demand for houses. The strike has been on for a week.

Interest prevails over the successful *dénouement* of the plans of Lake and Pittsburgh people, who have for some time been active in Southern Arizona. Their first property, Calumet and Arizona, has just completed its first year after development, and is now evidently one of the big copper mines of the country. Only one of its mining claims is yet opened into, and that is proving very rich. Others are known to contain ore. A few months ago the same interests secured several additional claims close by, and they have now taken a bond on the South Bisbee, development on which will commence at once, and which they hope will prove valuable. An enormous amount of work will be necessarily to prove these two latter properties, while the Calumet and Arizona is already proven. A considerable new New York interest is connected with the Lake and Pittsburgh people in the latter property. Stock of Calumet and Arizona, which went on the market a year ago at par, $10 a share, for the 200,000 shares, is now freely bid up to $55 a share, and at that almost none is coming out, the holders considering it more valuable. This stock was far oversubscribed in one day last year, entirely on their merits and on the reputation of the Duluth and Calumet men back of it, and it has fulfilled their expectations splendidly.

New Trade-Mark Bills.

Two trade-mark bills are now before Congress, the one being substantially an extension of the present act of 1881 to trade-marks used in interstate commerce, and the other a well rounded statute covering the whole field of commerce under the control of Congress—viz., "Commerce with foreign nations, among the several States and with the Indian tribes," and in the territory of the United States not included in any State. By such a broad view of the subject the commission which presents the bill has been able to include all the obligatory and optional marks of the Tariff acts, also marks on foods and medicines indicating quality or inspection, and further to include all trade-marks under the common law by broadening the definition of trade-marks so as to include any mark distinguishing the produce or manufactures of all classes of persons, partnerships and corporations now protected, and besides common carriers and trades unions. All the remedies of the common law are preserved; to which are added a penal clause and provision for seizure in transit.

The registration does not give any additional validity to the trade-mark, as it is provided (Sec. 28, Par. 1) that the validity of the registration may always be attacked; but it gives additional value, since without registration suit cannot be brought for its protection.

It seems that the time is ripe for a general law, comprehensive in its character, which will get all marks on the register in Washington and then give the registrant, besides the present civil suits, adequate protection through the right to appeal to the courts, either for seizure of goods bearing counterfeit marks or for the punishment, as a crime, of the imitation of a trade-mark.

The Defiance Automatic Copying Lathe.

The machine here illustrated is intended for turning, from patterns, all kinds of irregular shapes, such as spokes, neck yokes, handles, gun stocks, and other similar wooden articles. The cutter head is fitted to a steel spindle, which runs in large bearings attached to a vibrating frame. This frame is traversed by means of a heavy screw upon planed ways across the patch of the stock to be turned. The mechanism for moving the cutter so as to duplicate the pattern will be understood from the sketch, Fig. 2. The pattern is placed in centers at the rear of and parallel with the bed of the machine. By means of the gears shown the pattern is revolved at the same rate as the stock being worked. Held in contact with the pattern is a roller on an arm secured to the frame carrying the cutter. From this it will be seen that the cutter reproduces on the stock the exact contour of the pattern which serves as a guide.

The hand lever projecting up over the carriage is used for bringing the cutter to the work or locking it back out of the way when not in use. The feed can be instantly changed from right to left, or from left to right. The result is a saving of time, as the machine is prepared to commence the cut at either end of the stick. The tail stock is fitted on top of the frame, which is planed true, and is always in line with the head center. It can be quickly adjusted toward or from the head for short or long turning, taking 48 inches at the longest, and turning work up to 8 inches in diameter. The article turned may be made either larger or smaller than the pattern. The machine is built by the Defiance Machine Works of Defiance, Ohio.

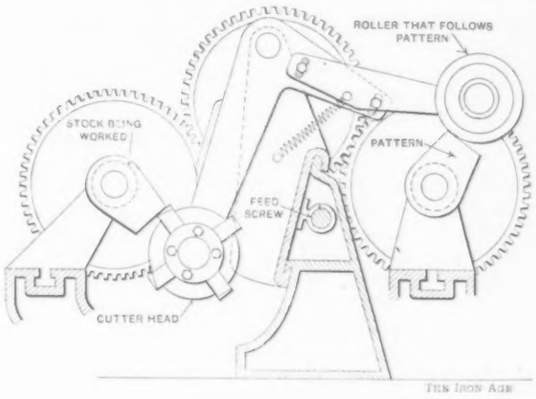
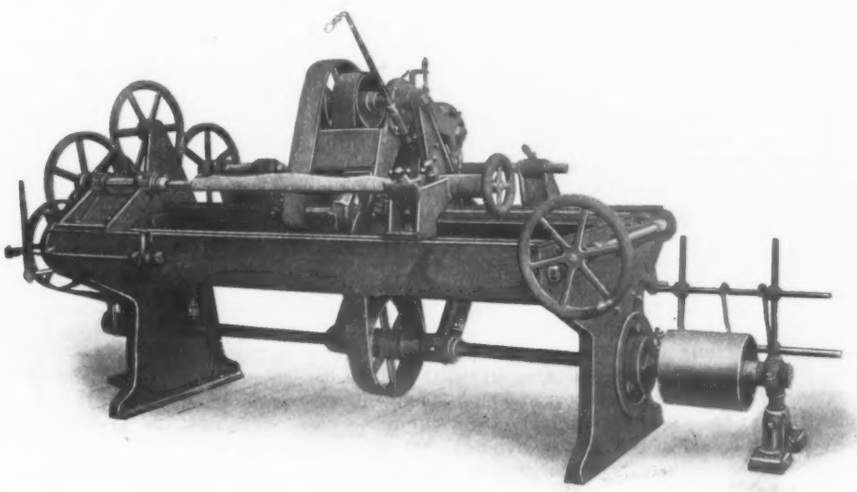


Fig. 2.—Sketch of Cutter Controlling Mechanism.

At Zanesville, Ohio, a suit for an injunction to restrain the Eastern Tube Company of Zanesville from using certain patterns in the manufacture of iron and steel pipe was dismissed. The National Tube Company alleged that Harry Nuttall, while still in their employ in Pittsburgh, and after he had been employed by the Eastern Company, took certain patterns for the working parts of machinery used in the plaintiff company's plant for use in the plant which was being built at Zanesville.

Edward Atkinson, president of the Boston Manufacturers' Mutual Fire Insurance Company, has issued an appeal for support in establishing an experiment station, which may soon be developed into a school of insurance engineering affiliated with or a department in the Massachusetts Institute of Technology.



THE DEFIANCE AUTOMATIC COPYING LATHE.

The United States Steel Corporation.

The Conversion Plan and the New Bond Issue.

The following is the circular issued over the signatures of Charles M. Schwab, president, and Elbert H. Gary, chairman of the Executive Committee, to the stockholders of the United States Steel Corporation:

Your corporation having completed the first year of their existence, the management, after a careful study of the operations of the several subsidiary companies during that period, and as a result of frequent consultations between the presidents and managers of the companies, and a minute study of the several properties by engineers, now submits to you a plan that meets with the approval of your Executive and Finance committees and of all the members of the Board of Directors present at the April meeting.

At the time your corporation were organized it was expected that great economies in manufacturing would be accomplished. As stated in the preliminary report issued on February 17, 1902, such expectations have been realized to the extent possible through practical co-operation, common methods of accounting, and frequent interchange of views between the managements of the several plants.

By the acquisition during the year of additional ore, coal and steamship properties the subsidiary companies have been placed in a satisfactory position as to raw materials and transportation facilities.

The main object still to be accomplished is to harmonize further the several properties through such rearrangement and extension, and, in some cases, such modernization, as will produce a completely rounded system of co-ordinated plants adapted to the entire process of mining and transportation and of transforming raw materials into the highly finished products of the several companies at the lowest cost.

Economies in manufacture still greater than those which already have been accomplished may be effected if plans of improvement now proposed be carried out. It is estimated by the Executive Committee that the expenditure of about $25,000,000 for such improvements will effect a saving in manufacture of, say, $10,000,000 annually, and also under normal conditions would substantially increase the output, thus adding from $10,000,000 to $15,000,000 to the yearly profits. That these expenditures could be met gradually from surplus earnings the management does not doubt; but this would necessitate extending them over a period of years, and correspondingly would postpone the realization of the profits, which, by the immediate use of the money, could be obtained promptly.

In February, 1901, various subsidiary companies had under contemplation, and in many cases actually had begun, the construction of additions to their plants, which in some instances would have duplicated the facilities of other subsidiary companies. The aggregate of these contemplated expenditures was something like $50,000, 000. As stated in the preliminary report of February 17, 1902, much that at the time of organization it was hoped might be accomplished in the way of avoiding wasteful expenditures for unnecessary enlargement of plants has been accomplished by co-operation among the several companies enabling one to utilize the facilities of the other. However, owing largely to advance commitments, it was impossible to stop all construction at the time your corporation were organized; and, in order to finish work then already under way, cash payments have been made during the year to the amount of $15,000,000.

It was not possible then to determine how much of this contemplated expenditure of about $50,000,000 would have to be made, nor in advance of sufficient experience would it have been wise to capitalize any part of the $15,000,000 that have been actually expended.

Within the next few months will fall due payments, aggregating about $10,000,000, for properties purchased almost immediately after your corporation were organized. In the preliminary report to stockholders these payments were described as "purchase money obligations."

The Executive Committee unanimously is of the opinion that it is desirable immediately to carry out the plans of the management to effect the completely rounded system above referred to. The Finance Committee is unanimous in its support of the Executive Committee's recommendations, and believes that, as desired by the Executive Committee, $25,000,000 should be made available for improvements. The Finance Committee also recommends capitalizing both the $15,000,000 expended during the year for commitments made prior to your corporation's organization and the $10,000,000 yet to be paid for properties as above stated. These three purposes in the aggregate call for $50,000,000.

The problem confronting the Finance Committee has been to make provision for this $50,000,000 without issuing preferred stock, which stock cannot be sold at less than par, and which, if sold at par, would be entitled to dividends at the rate of 7 per cent., and would increase by $3,500,000 the present annual dividend requirements of the corporation.

The suggestion was made that preferred stockholders might be willing to exchange a portion of their stock for bonds of the corporation, bearing a lower rate of interest, their concession of income on the portion of their stock thus exchanged being compensated, first by the consideration that such bonds as should be given in exchange for preferred stock would generally be regarded as a higher order of security; and, second, because the prompt employment of the new capital so to be obtained would additionally guarantee the permanence of the present dividend rate on the remainder of their preferred stock.

After discussion with some of the principal stockholders, it appeared practicable to rearrange your corporation's capitalization (which, in round numbers, now consists of $300,000,000 of bonds, $500,000,000 of preferred stock and $500,000,000 of common stock) by substituting for $200,000,000 of the preferred stock $200,000,000 of sinking fund 60-year 5 per cent. mortgage gold bonds, and by selling $50,000,000 additional bonds of such issue for cash. As the preferred stock carries 7 per cent. dividends while the bonds would bear but 5 per cent. interest, the $50,000,000 desired could, in this way, be added to the corporate resources, and the aggregate of the annual charges for interest and dividends instead of being increased $3,500,000 would be decreased $1,500,000 as compared with the present sum total of these two requirements.

The question whether the management would be justified in recommending an increase in the bonded debt has been exhaustively considered.

The unanimous conclusion of the Finance and Executive committees is that, considering the vast aggregate value of the physical properties, the proposed $250,000,000 increase of bonds from $300,000,000 to $550,000,000 is wise and conservative, the preferred stock issue being simultaneously decreased 40 per cent., or $200,000,000. The consequent $14,000,000 reduction of dividend payments as compared with the $12,500,000 increase of interest would result in a net annual saving of $1,500,000, exceedingly by $490,000 the annual sinking fund contribution of $1,010,000 to be required by the proposed mortgage, and which, invested at 4 per cent., would be sufficient in 60 years to pay off all of the $250,000,000 bonds.

An increase of bonded debt under such conditions, for such purposes and with such prospective results, is further justified by consideration of the net earnings of the properties, amounting in the past year to $111,000,000 (being fourfold the entire interest charge of $27,500,000 when and if the bonded debt shall be increased as above proposed), and which net earnings, by the consummation of important improvements, will be protected against the contingencies of periods of adverse business conditions. That the sinking fund may surely earn 4 per cent. interest, a provision will be put in the bonds reserving to your corporation the right, any time after ten years, to call them at 110, which is better than a 4 per cent. basis, thus making it certain that your corporation, by purchasing their own bonds, can invest their sinking fund on at least a 4 per cent. basis. Dur-

ing the first ten years that the bonds are running your corporation, to the extent required for sinking fund purposes, may buy the bonds in the open market, provided, of course, that they can be purchased on a basis that will yield at least 4 per cent.

To offset the exhaustion of ore beds, coal lands and deterioration of plants, various sinking funds are now being maintained. The further provision of this additional sinking fund to retire the proposed new bonds is, in effect, equivalent to retiring 40 per cent. of the preferred stock in 60 years, without increasing the aggregate of the present interest and dividend charges—in fact, decreasing them by a net saving of about $500,000 a year. To do this, and also to obtain the substantial benefit of $10,000,000 or $15,000,000 annually from economies in manufacture, and additional output by reason of improvements, is the aim of the present plan.

The plan thus outlined can be put in operation only after two-thirds in amount of both the preferred and common stocks present or represented at the stockholders' special meeting, called for May 19, shall have voted to issue $250,000,000 of new 5 per cent. 60-year sinking fund gold bonds, to be paid for by the preferred stockholders exchanging $200,000,000 of their stock for a like amount of the new bonds; the additional $50,000,000 of bonds to be sold for cash. To further the success of the plan, there has been formed a syndicate including some directors which will receive four-fifths of the 4 per cent. compensation to be paid under the contract with J. P. Morgan & Co., mentioned in the notice of stockholders' meeting.

As in round numbers there are outstanding $500,000,000 of preferred stock, and it is proposed to issue $250,000,000 of new bonds, the board has directed that each preferred stockholder shall be offered the right to subscribe for the new bonds to the extent of one-half of his holdings in preferred stock, 40 per cent. of each subscription to be payable in preferred stock and 10 per cent. in cash; that is to say, the holder of 100 shares of preferred stock of the par value of $10,000 can subscribe for $5000 of the new bonds at par, and pay for them with 40 shares ($4000) of his preferred stock and $1000 in cash; or he can exchange such 40 shares for $4000 new bonds without subscribing for any new bonds in cash. Preferred stockholders who do not wish to exchange stock for bonds will not be required so to do or to purchase any new bonds for cash.

The Novo Air Steel.

Jonas & Colver, Limited, of Sheffield, England, have lately placed upon the market a high speed steel, which is not only an air hardening, but also a hot water hardening steel whose temper need not be drawn. This steel may be forged at a much higher heat than usual, without fear of injury; but care must be taken that it is thoroughly heated. To harden the tool it must be reheated to a full yellow heat (lemon color) and placed immediately into a cold blast from a vacant forge, or in the hole in a blower pipe until quite cold. It may also be hardened in hot water which, however, must be so hot that one cannot hold his hand in it.

The steel may be annealed in the ordinary way, so that it can be machined and filed into any shape, the hardening then being done in the above described manner. Even the finest edges of thread of tool tap, milling cutter or die remain sharp, and there is no danger of any tool cracking. The speed at which this steel can be run is remarkable, as is shown by the tests given below. There is no special treatment required for forging, but the steel must be worked at a higher heat than usual. There must be a clean hollow fire, and the steel must be heated thoroughly before working. It must be kept at a uniform heat while forging.

The following tests show the character of the steel: A thread tool was made of ¼ x 1 Novo air steel in a large and well equipped shop, and a thread was cut on a piece of annealed tool steel 2⅞ inches in diameter for a length of 16½ inches at a higher speed than was ever used in that shop before.

A tool 1 x 2 inches roughed on 11.50 inch diameter shaft for a hoisting engine at 93 feet per minute, taking a 0.50-inch cut with feeds varying from 1-32, 1-16 to ⅛ inch; 4 feet being the length required to cut. The same tool did the finishing cut at the rate of 70 feet per minute.

On cast iron the Novo air steel cuts 35 feet per minute, ¾ inch deep cut, ¼ inch feed on roughing cut, and the same tool finished the cast iron at 165 feet per minute with 1-16 inch.

A tool 1¼ x 1¾ inches roughed a nickel steel tail shaft 11 inches in diameter by 18 feet long, for a steamer, at 35 feet per minute. The cut was ½ inch deep, and the rate 1-16 inch feed over the entire length. The same tool finished the shaft and came out in perfect condition.

A tool ¾ x 1½ inches roughed a 0.4 per cent. carbon projectile 8 inches in diameter by 27 inches long in nine minutes, when it formerly took 20 minutes. The speed was 56 feet to the minute, ¼ inch cut, 1-16 inch feed, thereby gaining 11 minutes in time. Another projectile 12 inches in diameter by 54 inches long was turned with a 1 x 2 inch tool over its entire length at a speed of 48 feet to the minute, ½ inch cut, 1-16 inch feed, and the tool was in a condition to do the job over again. The same tool finished the projectile at 90 feet to the minute.

A most remarkable test was made by a leading machine tool maker with a 7-16 inch square Novo steel in a tool holder. Eight pieces of machinery steel, 1⅝ inches in diameter and 34 inches long, were roughed out to 1 9-16 inches at 108 feet to the minute.

At a large shipyard brass casting sleeves made by Government composition, which is extra hard brass, with a crust on it, was worked. It had a diameter of 20¼ inches, and was cut at a speed of 150 feet per minute, the cut being 3-16 inch and the feed ⅛ inch. The size of the tool was 1 x 1¾ inches. The steel cut 24 inches without resharpening, which is four times better than had been previously done in the shop.

A special forged Government nickel steel, 5 inches in diameter, was cut at a speed of 57 feet per minute, the cut being 3-16 inch and the feed ⅛ inch. This, it is stated, is three times faster than it was possible to do before.

A forged main bearing bolt of nickel steel, with heavy scale 3⅜ inches in diameter, was cut at a speed of 41 feet per minute, the cut being 5-16 inch, while the feed was ⅛ inch.

At a well-known engine works a cast iron rope transmission sheave, 23 feet 6 inches in diameter, 6 feet high, was roughed off simultaneously by five tools of 1 x 2 inch Novo steel. The speed was 27 feet per minute, and in the roughing operation the five tools working all at one time removed stock at the rate of 500 pounds per hour. These five tools ran continuously for a period of 36 hours without grinding.

At a pump manufacturing plant a Novo steel tool was put into a No. 34 Gleason lathe. It was put to work on a rough plunger, 7 inches in diameter by 38 inches long, at the speed ordinarily used—viz.: Second largest cone and back gear. At a speed of 11 revolutions per minute, the feed being 5-64 inch, it cut at the rate of 20 1-16 feet per minute. A series of trials were made to increase the speed, with the following results:

Trial.	Revolutions.	Speed.	Feed.	Remarks.
1	11	20 1-6 feet.	5-64	Ordinary speed and feed.
2	17	31 1-6 feet.	5-64	Next cone (third largest).
3	17	31 1-6 feet.	3-32	Same as last.
4	25	45.83 feet.	1-16	Smallest cone.
5	90	165 feet.	1-16	Finish cut.

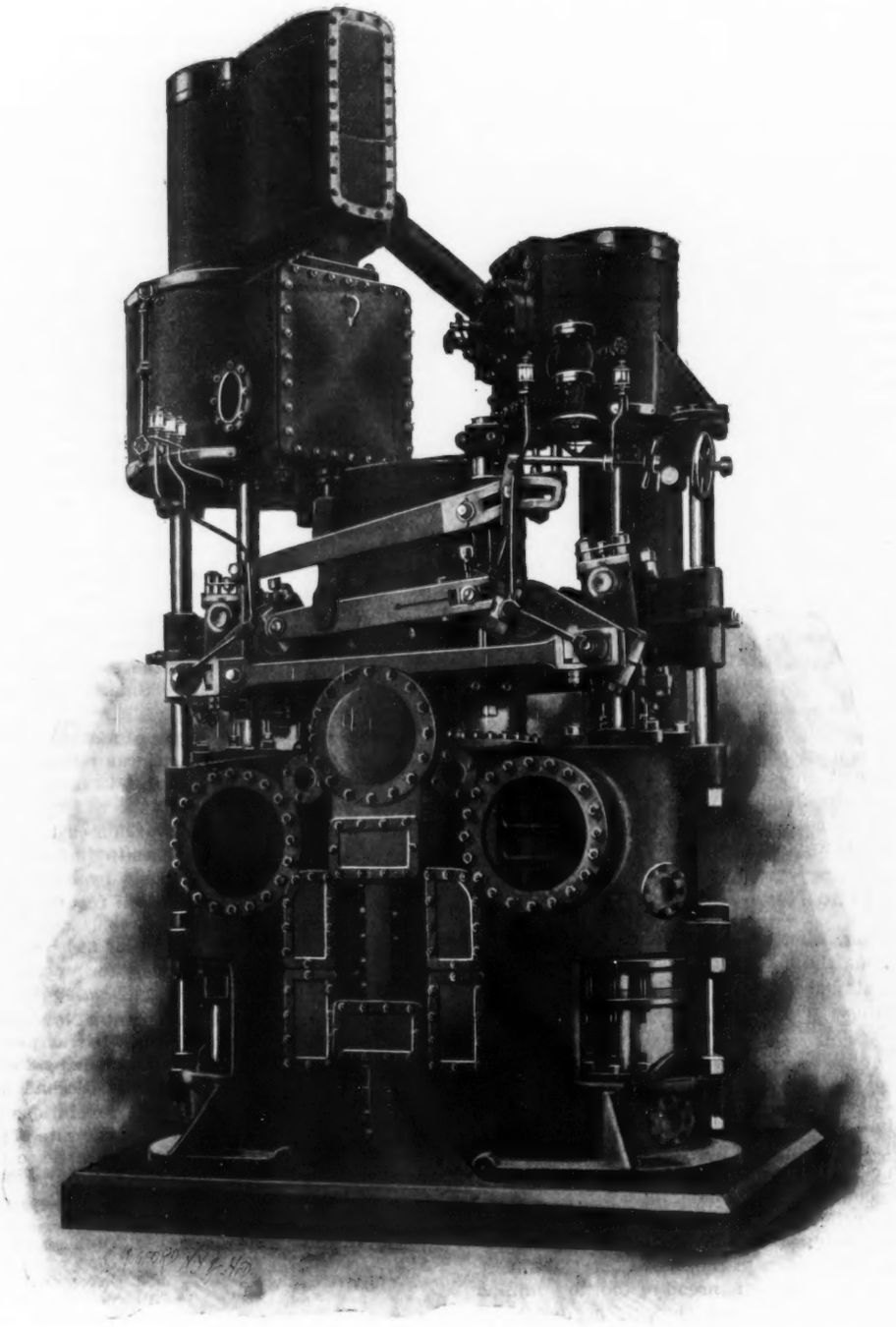
The tool was not injured, the cutting edge being good; but it was reground for the finishing cut and was used for the next rough cut, about 3-16 inch deep.

The selling agents in the United States of the Novo steel are Hermann Boker & Co., 101 Duane street, New York.

The American Tin Plate Company have obtained a temporary injunction in the United States Court at Covington, Ky., against the Licking Rolling Mill Company of that city, restraining them from using the letters "M. F. H." on certain brands of tin roofing. The plaintiffs claimed that the use of these letters constituted an infringement upon their property rights. The case will come up for argument at the next term of court.

The Heisler High Duty Pumping Engine

At the Cincinnati meeting, May, 1900, of the American Society of Mechanical Engineers a paper was read describing a compensating boiler feed pump having a 7 x 10 x 14 x 10 inch steam end and a 4 x 10 inch duplex water end. This engine showed, as an average of several tests, an indicated horse-power on 26 pounds of steam per hour, running non-condensing, with 110 pounds steam pressure at the pump. The results obtained from this small engine were so satisfactory that they justified the construction of an engine having a capacity of 4,000,000 gallons per 24 hours. As the latter engine showed the same general characteristics as the small one, there was no hesitation in taking orders for 7,000,000, 8,000,000 and 10,000,000 gallon engines, one of which is here illustrated, a general description of which may be of interest.



THE HEISLER HIGH DUTY PUMPING ENGINE.

When working out the design the object was to obtain a high commercial efficiency rather than to secure the greatest possible refinement thermodynamically, without regard to first cost and the maintenance of auxiliaries necessary for securing the highest thermodynamic efficiency. Therefore steam cylinder jackets and reheaters are omitted. A Richardson balanced locomotive slide valve is used in the high pressure steam chest and plain slide valves are arranged in the intermediate and low pressure steam chests. The intermediate steam chest is made separate from the cylinder and is of cylindrical form for obtaining strength and large receiver capacity. The cylinders are lagged in the usual manner with non-conducting material. Their diameters are 12, 26 and 44 inches and 24-inch stroke. The double acting plunger is 13 inches diameter.

The compensating mechanism has been fully described in the paper above referred to. It consists of two pairs of rocker arms mounted upon the centrally located air chamber, and connected by the floating side rods, one

of which is shown in a horizontal position nearest the water end in the general view. The other rod is hidden by the air chamber.

The short slotted bar pivotally connected to the hubs of the rocker arms controls the low pressure and intermediate pressure valves, and is connected to the valve stem by a suitable link. The valve lead is changed by moving the pin bearing at the left end of the slotted bar; the cut off is adjusted by the pin in the slotted end at the right by moving it toward or from the rocker arm center.

The high pressure valve gear consists simply of the high pressure cut off lever, lying nearly horizontally and nearest the cylinder, and having a curved slot at its right end, which is link connected with the right hand rocker arm hub. The left hand is link connected to the compensating floating rod, as shown. Near the curved slot at the right the high pressure cut off lever is pivotally mounted upon a valve stem slide of the usual construction, by means of the slot link block and hand wheel shown at the extreme right; the cut off in the high pressure cylinder may be changed from ⅝ to ¾, as desired.

Under usual and normal conditions the compensating floating side rods are in tension, so that the main rocker arm bearings thrust against the air chamber, which is heavily braced inside so as to give a rigid support for the bearings.

The water end may be of any desirable construction, either with inside or outside packed plungers. In these engines it is usual to give each valve deck from 130 to 170 per cent. valve area, as compared with the plunger area. The water passages have approximately the same proportion of cross section.

Since the stroke is fixed in length and is positive, no trouble is experienced in starting, or when exhausting the air from a long suction line, even when lifting 25 feet; therefore foot valves are unnecessary, and it has been found preferable to have a free and uninterrupted passage from the well to the suction valves. The screens are constructed so that one can be cleaned while the other is in service. The two independent suction inlets are at the highest point on the water end and on either side, there being four suction openings, two for the suction pipe, while the two on the opposite side open into large air chambers, one of which is shown back of the high pressure cross head.

The valve decks are arranged vertically parallel. The four discharge decks face each other and have a common central discharge chamber communicating directly with the large central air chamber above. No flat surfaces are exposed to high pressures excepting the valve decks, which are heavily reinforced, and the narrow strips of exterior walls between the decks; the greater portion of these walls is taken up by the 12 manholes and four hand holes covers. The small remaining areas are heavily ribbed inside. The larger areas of flat surfaces are on the suction side of the valve decks, and the plunger chamber is cylindrical.

Refined duty tests have not yet been made on this engine. The data obtained, however, show that the engine will give a steam economy comparing favorably with that from fly wheel engines when fitted with slide valves, working triple expansion, and cutting off at from ⅜ to ⅝ stroke. Indicator cards taken from the large engine are like those taken from the small engine already referred to. Engines are now being developed for 15,000,000 to 20,000,000 gallons capacity and fitted with Corliss valve gear. For average conditions and powers under 150 indicated horse-power, and where simplicity is most desirable, plain slide valves are used. The valve gear, although very simple, gives a quick opening and closing action. There being no heavy revolving masses requiring large and rigidly supported bearings, as in fly wheel engines, it has been found preferable to omit the heavy A-frames quite common to such engines, and instead mount the steam end and compensating mechanism directly upon the water end. It requires but little, if any, more time to replace a water end than to remove such a part from between the legs of an A-frame. Moreover, it was considered better economy to put an excess of material in the water end, rather than in an A-frame, so as to reduce to a minimum the chance of breakage.

This engine is built by the Heisler Pumping Engine Company of Erie, Pa.

The Holtzer-Cabot Gas Engine Igniter.

The Holtzer-Cabot Electric Company of Boston, Mass., have recently designed and placed upon the market a new gas engine igniter of the dynamo type, which presents some novel and distinctive features, the most important of which are found in the fact that it does not require the use of a spark coil and is quite independent of speed, the latter feature overcoming the great objection to the dynamo type of igniter.

There have been of late great advances made in the size of gas and gasoline engines, while the best practice seems to incline toward the multiple cylinder. These engines, by reason of the nature and volume of the body of gas to be ignited, the high frequency of the spark and also on account of pecularities in the construction of the make and break device, require a large and practically continuous flow of current to produce satisfactory ignition.

It is well known that the strength of magnetization obtainable in the best permanent magnets is for a given weight relatively quite small in comparison with that which may be secured with an electro-magnet. It is evident, then, that a machine of the permanent magnet type constructed to deliver any considerable amount of energy would be unnecessarily large and heavy. This igniter has been therefore made of the dynamo type for the reasons given. It weighs 19 pounds and will, if necessary, deliver continuously a maximum output of 50 watts. As stated, the dynamo is practically independent of speed, and at 1000 revolutions per minute will deliver ample current for satisfactory ignition, while the speed may be increased to 2500 revolutions per minute without any danger from burning out. Thus the igniter may be driven from the fly wheel of the engine with the ordinary belt or friction pulley.

The field core is a solid casting of soft steel, and the armature is of the drum type, carefully laminated and wound with double silk covered magnet wire. The shaft is of high grade steel and the bearing sleeves are of phosphor bronze. The brush holders and commutator are large and heavy, while the brushes are of a special composite structure, combining the substantial qualities of carbon with the higher conductivity of the copper. The machine is rendered quite impervious to dust and moisture by a protecting shield, which fits over the commutator and brushes. This may be easily removed, making the brushes and commutator readily accessible. The body of the machine is mounted on a light hinged base in such a manner that a wide range of adjustment may be effected without using sliding contacts or clamping nuts.

A Steel Plant for the Deering Harvester Company.—The Deering Harvester Company of Chicago are making arrangements for the erection of a large steel plant for the purpose of supplying themselves with the variety of shapes which they need. They are large consumers of steel bars, small angles and steel in other forms, and their business has grown to such dimensions that they believe that it will be advantageous for them to make their own material as far as possible. The works will probably be built on the Calumet River, to take advantage of the excellent opportunities there afforded for securing raw materials by lake vessel. The company have recently made large purchases of ore properties in Minnesota. They have not yet progressed sufficiently with their arrangements to give any further details. We can say, however, that the report in the daily press that the South Chicago Furnace Company will build this steel plant in the interest of the Deering Harvester Company is untrue. The South Chicago Furnace Company, as mentioned in these columns some weeks since, are arranging to add a second furnace to their plant and propose to confine their operations strictly to the production of pig iron.

The Systemizing of Workshops

BY EGBERT P. WATSON.

In every successful manufactory there is a system of some kind adopted by which it is carried on, sometimes written and sometimes unwritten; in either event a certain routine must be followed or else chaos comes again. This is particularly true of concerns which have an infinity of detail in the goods manufactured. Success is impossible unless automatic business methods prevail throughout and are sedulously enforced and followed unswervingly. In some concerns there is only a partial systematization; great events or processes are carefully scheduled, while those which are deemed of less importance are left to luck and chance, and get themselves out as best they may.

This refers wholly to the workshop end of any business, but in the office end, or administration department, there is in some cases a woeful lack of system which paralyzes the best managed machinery. Especially is this true in regard to the working force employed. From one cause or another there is always restlessness, dissatisfaction and change in the force in some concerns, and the owners of the factory never know what to count upon from one week to another. Unpopularity of foremen and superintendents is a frequent cause of trouble; individuals who have been successful with 250 men, suddenly become imbued with a sense of their ability as managers and come to grief when promoted to the management of 1000 men. They issue pronunciamentos, usually beginning with the words: "On and after this date employees must," &c., and thereby create disaffection from the moment they are posted. A tactless man in charge can empty a shop quicker in this way than by any other proceeding, for American workmen at least know that there is no "must" so far as they are concerned, and that compliance with any rule or regulation that the management wishes to institute could be promptly secured by a request instead of a mandate. Offensive personal bearing and carriage of any officer of the company are also a source of trouble when manifested in the presence of the men, and the "come not between the wind and my nobility" attitude calls up the refractory element at once. As a rule I have always found mechanics generally susceptible of civil treatment; they ask nothing more, they understand the relation of employer and employed thoroughly, and do not expect the bosses to hobnob with them when they are in or out of the shop. Nothing is lost by consideration and recognition of men as men and this of itself goes far to obtain harmonious relations at all times.

I was especially struck with this by an occurrence some years ago at the Pratt & Whitney shops in Hartford, Conn. Standing upon the steps of the office talking over a transaction of some importance with Francis A. Pratt, a poorly clad child of about ten years of age passed, market basket in hand, when Mr. Pratt immediately broke off the conversation and called out to the little girl: "How's your father to-day?" and held her for some time inquiring into the details of the family welfare; he afterward explained that the father was a foundry laborer who had been accidentally hurt the previous week and could not work for some time. How many presidents of large concerns are there in this country who would even be aware that a laborer had been hurt in their shop, much less know his child passing in the street, or stop in the arrangement of an estimate to inquire into the condition of the man? Not very many, and I could not but reflect, as I walked away, that this was one reason, possibly, why there has never been a strike in the Pratt & Whitney Company's works during an existence of over 35 years.

There is no reason that occurs to me why the whole business of any large factory should not be managed upon a catholic, all pervading system throughout. To do this would require a thorough comprehension upon the part of the owners of the working force itself, and that is a detail that is not easily acquired; never, I may say, unless a manager has been a workingman himself, and has had their lives and his own along the same line. Lacking this element of the problem, the manager could or should comprehend that if he is unfitted in this direction, there are others who are not and can manage men without letting them know they are managed or under surveillance even. As men are now engaged there is much to object to; they are not allowed, in a majority of cases, to interview the foreman in their special lines direct, but are ushered into a hall or waiting room, where they have to sit for hours sometimes until whoever has charge of hiring them has time to tell them that no more help is wanted. This is outrageous, for a workman's time is just as valuable to him as the manager's is, and where he has to lose a quarter of a day to get a simple negative or affirmative, he is apt to feel that he has been unjustly treated. This brings me to say that a special officer of the concern is needed where many hands are wanted and there should be a department created for him where there is none now. If it is essential to have contractors for the milling, assembling and inspection departments, it is of the first importance to have the labor department, upon which all the rest depend for continuance, absolutely immune from abrupt cessation. Offices exist for the financial and business bureaus; the treasurer is accountable for the funds, the general manager and the proprietors for contracts, but anybody generally is responsible for the hiring of men. It seems the hight of absurdity to delegate this to a pernickety clerk behind a wicket, whose actual business is footing up columns of figures, and who either does not know and probably does not care whether men are needed or not, and in any case cannot tell by long experience whether the applicant is desirable or quite impossible upon all grounds. The man who hires the help should have been a worker himself, a clear headed, conscientious person who recognizes that "the laborer is worthy of his hire," and has just as much right on the premises as the capitalist who comes to the firm to sell 1000 tons of pig iron. Too often the men are treated so rudely and discourteously by words and looks that by implication they are outcasts who have no rights that any one is bound to respect.

The man in charge of the labor bureau contracts to keep that part of the business in full working order at all times, and in order to do this he must, of necessity, know all the possibilities ahead as to work contracted or about to be contracted for. A sudden call for a certain number of assistants cannot always be met, either in grade, quality or specialty. That is why Mr. Labor Contractor must be fully informed in advance so that no department shall be short handed for one hour. In 30 days the general manager advises him "We shall need 150 new men of the several callings enumerated," and this information is given in the form of an order, emanating from the principal office of the company, so that there can be no complications or disputes arising in the future as to whether such a notice was ever given. The labor contractor knows exactly what questions to put to men who have come to sell their skill, and just how to treat them so that their self respect shall not be wounded, and he either engages them outright there and then, or informs them that he is not able to place them at once. It is no satisfaction to a man to have his name and address taken and be told that he will be sent for if occasion arises; his needs are for the present and he knows that if he does not get a job within a very short time both he and his family will never want one again. When the labor contractor has his department full his task is not ended by any means; he has to keep up his acquaintance with the men as regards their fitness by personal investigation, with the co-operation of the person in whose charge they are. He does not hold personal communication with them, but he gets his information through any channel open to him, by observation and by general report. No workman's status is unknown in a shop, no matter how many thousand there may be, and it is quite possible to get a true report without espionage of any sort, the testimony for or against is furnished by the man himself.

I feel quite confident that a labor contractor in a large industry would prove invaluable if the proper

man is found. Not every one is capable of filling such an office, but there are plenty of persons who are fitted for it by natural characteristics and qualifications, aided by actual experience, who could administrate to the satisfaction of both parties in interest, the owners and the men themselves. There would be no friction with other departments in any event; the foremen in charge would always possess the right to dispense with any man who was unreliable without conferring with the labor contractor, and there would be no argument as to why this or that man was dismissed. If, by mutual agreement, the principals in any case requiring arbitration should desire the labor contractor to serve on their jury he should be willing to act, but first, last and all the time his duty and special province is to see that the works are filled with competent men.

The Lake Ore Shipping Docks.

DULUTH, MINN., April 26, 1902.—Chief Engineer R. Angst of the Duluth & Iron Range road has issued a statement of the iron ore shipping docks at upper lake ports, which gives a lot of very interesting and valuable information. The table is complete up to May 1 this year as to all docks built and under construction on the American side of the lakes, but does not include that of the Algoma Central Railway at Michipicoton harbor on the Canadian side of Lake Superior. The table is as below:

Railway and location.	Dock No.	No. pockets.	Storage capacity.	Hight to pocket. Ft.	Hight to pocket. In.	Total hight. Ft.	Total hight. In.	Width. Ft.	Width. In.	Length. Feet.	Pocket angle. Deg.	Pocket angle. Min
C. & N. W., Escanaba	1	184	24,104	28	10	48	6	36	0	1,104	39	30
	3	226	30,284	31	2	52	8	36	0	1,356	45	0
	4	250	32,750	36	6	59	2	36	0	1,500	45	0
	5	232	43,152	28	6	53	3	36	0	1,392	40	0
C. & N. W., Ashland	1	234	36,036	32	10	54	0	46	8	1,404	39	30
	2	234	25,740	36	6	57	8	46	0	1,404	42	0
D. & I. R., Two Harbors	1	202	40,400	35	5	59	6	48	0	1,388	38	42
	2	208	41,600	33	5	57	6	48	0	1,280	38	42
	3	90	16,200	28	10	52	0	48	0	572	38	42
	4	168	36,960	37	0	62	0	48	0	1,112	38	42
	5	168	33,600	30	0	54	6	48	0	1,112	38	42
D., M. & N., Duluth	1	384	57,600	30	0	53	0	48	0	2,336	45	0
	2	384	69,120	32	0	57	6	48	0	2,336	45	0
	3	192	40,320	40	7	67	5	59	0	1,152	45	0
D., S. S. & A., Marquette	1	270	27,000	25	0	45	0	40	0	1,700	39	0
	3	213	12,780	23	0	37	0	53	0	1,200	39	0
	4	200	28,000	27	9	47	3	36	8	1,200	39	45
L. S. & I., Marquette	1	200	36,000	30	9	54	0	50	0	1,232	38	40
Great Northern, Superior	1	250	40,500	32	0	57	0	49	8	1,525	45	0
	2	350	87,500	40	0	73	0	62	8	1,500	45	0
M., St. P. & S. S. M., Gladstone	1	120	15,000	26	8	47	0	37	0	768	40	0
Wisconsin Central, Ashland	1	314	40,000	31	4	54	6	36	0	1,908	*	
C., M. & St. P., Gladstone	1	240	50,400	40	3	66	6	52	0	1,500	45	0

* The angles of pockets of the Wisconsin Central dock at Ashland vary, 234 of them having an angle of 42 degrees 30 minutes and the rest 8 degrees 15 minutes steeper. The angle of an ore pocket is the slope of the floor of the pocket toward the spout hole, and is usually steeper for soft, and especially for Mesaba, ores than for hard ores.

It will be noted that these docks vary greatly in hight, particularly in hight from water to bottom of pocket. The constant increase in depth of water in the channels connecting the lakes and the consequent constant increase in the depth of ships for ore traffic have necessitated the changing of dock structures and an entire revision in former models. Old No. 3 dock of the Duluth, South Shore & Atlantic road, at Marquette, is the most notable example of antiquated construction, with a hight of 23 feet to pocket and 14-foot pockets. It is not now in commission. Many other early day docks have been torn down in recent years,. The Soo road's dock at Gladstone is the lowest in use, less than 27 feet to pockets and but 47 feet to the deck. This dock cannot handle the type of ore carrying vessels that has come into vogue in the past eight or nine years. From it to the dock of the Great Northern at the head of Lake Superior—40 feet to the bottom of pockets and 73 feet in extreme hight to deck—is a great advance and marks a notable revolution in lake shipping interests.

These various docks show an aggregate storage capacity of 865,046 gross tons of ore, and have an aggregate shipping capacity for about 26,000,000 tons in a customary lake season. To them should be added the Algoma Central Railway Company's dock at Michipicoton, which, though it has no storage, is able to ship from 600,000 to 800,000 tons in a season, depending upon railway service. As noted, considerably more than half the storage capacity of the region is in docks that serve the Minnesota ranges, though the number of these docks is but ten, compared with 13 for Michigan ores. The six docks at Escanaba and Gladstone are on Lake Michigan, the rest on Lake Superior.

It would be interesting, in this connection, if a summary of the receiving docks at lower lake ports should be compiled, with their storage, unloading rigs and capacity.

D. E. W.

The Fire Hazard in Using Fuel Oil in Core Ovens.

The monthly report of the Western Manufacturers' Mutual Fire Insurance Company contains the following inspector's report of a fire at the works of the George F. Blake Mfg. Company, at East Cambridge, Mass.:

This fire is interesting from the lesson it may teach of a possible hazard from the use of fuel oil in core ovens. The oil pump is driven by the same air supply that vaporizes the oil jet, thus making it certain that the oil will not be discharged at the furnace if the air to spray it should fail. The oil supply is so arranged that if the air fails the oil drains back to the tanks, which are below the grade of everything. In this case oil and air are supplied under a pressure of from 15 to 20 pounds.

It is customary at this plant to shut off the burners at 4.30 p.m., relighting them at about 2 a.m. The explosion occurred Sunday, March 16, at about 8 p.m. The burners had been shut off at the usual time Saturday night, and a new brick arch had been sprung over one of the furnaces during the day. The furnaces and ovens were cool and the conditions of the weather were such that there was no draft at the time the attempt was made to light the furnaces. A strong, freaky wind, amounting to a gale at times, was blowing from the southwest, accompanied by rain and a heavy atmosphere. This and the fact that the furnaces were cool brought about, it is thought, a back draft. Two of the furnaces had been lighted in the usual way and the attendant was in the act of lighting the third when, turning to answer a question by the watchman, an explosion occurred which seriously burned him and the watchman, who was standing a few feet away.

The force of the explosion was sufficient to blow the 24-inch wall of the furnace building outward about 6 inches, and it is probable that it cracked the top of the ovens sufficiently to allow the flame which accompanied the explosion to reach the wooden roof of the furnace building. It may be, however, that the roof was not ignited at this time, but that afterward when the ovens were heated sufficient heat found its way to the roof through the space caused by the bulging wall to cause it to take fire, the roof of boards and joists being very dry owing to the constant heat.

The explosion was probably due to carelessness on the part of the attendant in lighting the furnace. It

would seem that a considerable volume of vaporized oil and probably gases from incomplete combustion had collected in the furnace and also in the oven; the lack of draft would make this possible.

The Alberger Cooling Towers.

Cooling towers were commercially introduced into this country about ten years ago. Since that time they have been installed in a great variety of situations and have become recognized as an important and valuable adjunct to power stations and refrigerating plants where the water supply is limited. That the experimental stage has been passed is evidenced by the fact that numerous steam plants have been located where there is no natural water supply for condensing purposes, and have been equipped with condensing engines and cooling towers. This selection of site has been influenced by better coaling facilities, more favorable distribution of the electric current, the lesser cost of land away from water fronts, and the knowledge that results practically equal to those obtainable with a natural water supply can be had with properly applied cooling towers. It may at first seem unreasonable to imply that the same results can be obtained, but it must be borne in mind that cooling towers possess operative advantages of considerable importance. When they are used, the water supply to the condensers is not liable to be cut off by ice or other foreign material, nor the suction lost on account of low water, as is not infrequently the case where rivers subject to considerable rise and fall are the source of the condensing water. The presence of a supply of water in the cooling tower, at practically the ground level, allows the condensing apparatus to carry large overloads without loss of the suction. Freedom from foreign material permits of the use of a more complete spraying device in the condenser, and a higher efficiency follows; furthermore, the durability of the condenser is enhanced, as the water usually contains the oil from the cylinder lubrication of the main engines and is free from any material that can wear the moving parts.

The cooling tower designed and built by the Alberger Condenser Company of 95 Liberty street, New York, is cylindrical in form and is constructed of sheet steel, carefully riveted and braced. There are two types, one in which the air is circulated by means of one or more fans, and the other by means of a stack placed above the cooling tower proper, which produces a draft when the air becomes heated by the hot water from the condenser. The former type is especially suited for ammonia condenser work and for steam condensers where the space available is limited, or where the tower can be placed to advantage upon the roof of the engine or boiler house. While, of course, the power required to operate the fan is a constant charge, still by running the fan at a reduced speed when the load is light or the weather is cold, and by returning the heat of the exhaust steam from the fan engine to the boiler by way of the feed water, the actual charge is reduced to an inconsiderable amount.

The filling of the cooling tower consists of boards of swamp cypress, geometrically arranged in a regular manner so as to positively determine a complete and

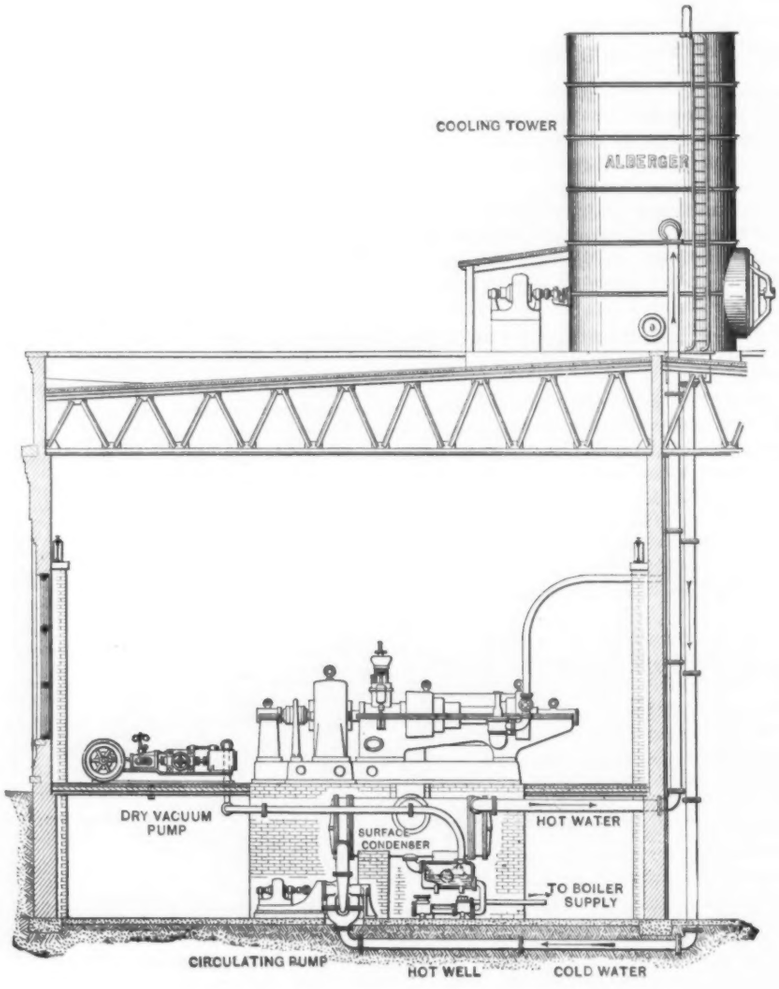


Fig. 1.

THE ALBERGER COOLING TOWER AND HIGH VACUUM SURFACE CONDENSER.

ultimate distribution of the water and the air, there being no haphazard arrangement of the filling or changeable condition that may divert the air and the water in any one particular direction. This kind and arrangement of filling recommends itself because of the uniform effectiveness of the sheets of water exposed to the air on its extended surface. When tile or metal tubing is packed in layers the spaces between the adjacent pieces are very much smaller than those through the center of the tubes, although there is about the same amount of surface inclosed between the points of contact. This reduced space restricts and prevents the passage of a full amount of air and consequently the effectiveness of the surface is much impaired. As one layer is stacked upon the other it is very common to find the interstitial space entirely blocked off by the thick walls of tile in the next layer, and in this way rendered absolutely inactive. Cloth and wire mats have been used, but the lubricating oil from the cylinders of the main engines is very apt to find a lodging place in the small spaces between the strands that form the meshes and compel the water to travel in more or less heavy streams down the face of the mats without useful contact with the air. Such constructions require frequent cleaning to maintain their original capacity for doing work.

The fans of the tower are operated by a steam engine, which also drives by direct connection a centrifugal pump that withdraws the hot water from the hot well and discharges it to the distributer of the cooling tower. The distributer consists of a series of radially disposed arms. The water issues from these arms through tubes so arranged as to cause the water to retain its jet form until it reaches the filling, over which it spreads. As each tube has to supply water for all the filling over which it passes during a revolution it is of necessity of comparatively large diameter and does not become clogged with leaves or other similar material, as happens with the small holes or slits found in some stationary distributers that rely upon the fineness of the jets to break up and spray the water. The hub of the distributer, which carries the arms, is rotated upon a roller bearing by the reaction of the jets of water. An even and practically perfect distribution of water over the filling of the tower is assured, and it is not possible for any portion of the filling to receive more than its proportion of water while other parts receive less and are perhaps dry.

The fans used to circulate the air in the fan towers are the product of long experience and give high efficiency under the exacting conditions of cooling tower work. They are well built and are adapted for continuous and long service. The bearings are of the ring oiling type, fed from a reservoir, and require attention only at long intervals.

High Vacuum Condensing Apparatus.

Fig. 1 shows a cooling tower upon the roof of the engine room, the fan being operated by an electric motor directly connected to an extension of the shaft.

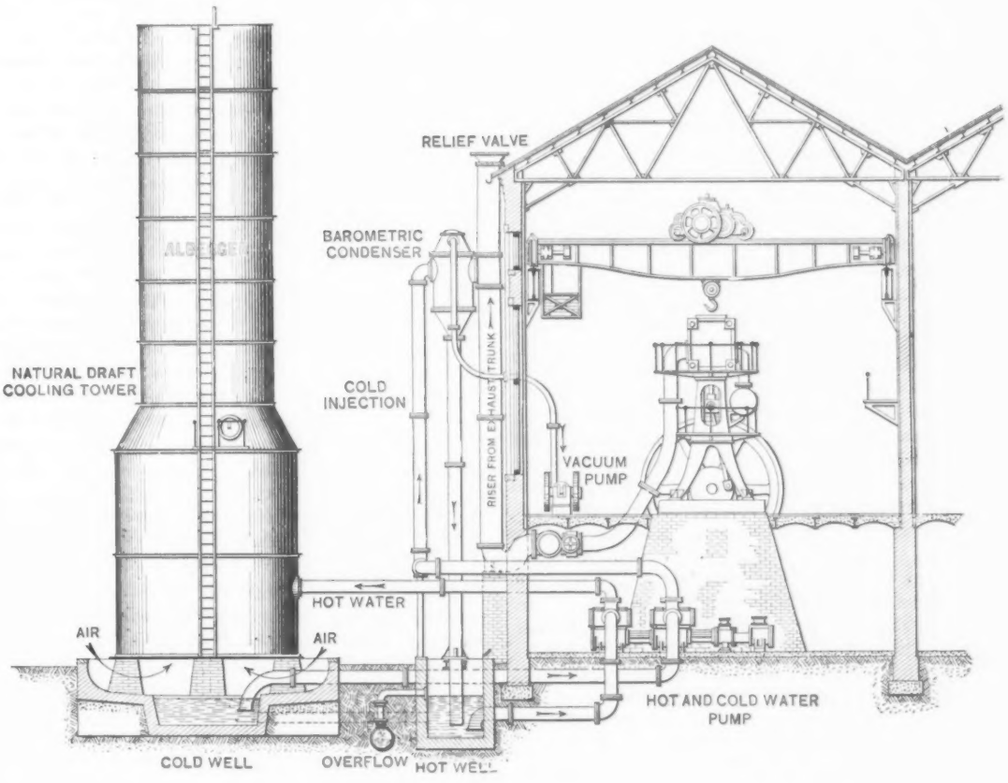


Fig. 2.

THE ALBERGER NATURAL DRAFT COOLING TOWER AND BAROMETRIC CONDENSER.

This engraving shows the application of the Alberger high vacuum condensing apparatus to a steam turbine. The water is circulated through a surface condenser and up to the tower by an electrically driven centrifugal pump. The work done by this pump, however, is only that due to the hight of the cooling tower, because the descending column of water balances the ascending column, with the exception of that distance. Carrying out this idea still further, the cooling tower can be placed at any hight above the condenser, if such a location is desirable for other reasons, without materially increasing the load upon the pump.

The surface condenser is shown as operating on the Alberger dry vacuum system, which is particularly adapted for the handling of air and vapor without the use of water in the cylinder. The condensed steam is removed from the condenser by means of a hot well pump automatically controlled so as to prevent any accumulation of water. This pump being required to handle water only and being placed beneath its supply, has very light work to perform, compared with one handling a mixture of water, air and vapor. The circulating pump is preferably an independent unit, and can be

operated in proportion to the work. The water and steam are directed through the condenser in such a manner that the air before leaving the condenser comes in contact with the coldest tubes, and is reduced in volume and to a temperature approximating that of the condensing water. The condensed steam in the form of water is removed after contact with the hottest tubes.

Natural Draft Cooling Tower.

The natural draft cooling tower, Fig. 2, represents the most advanced type, as no power is required to circulate the air. This tower is preferably about 80 feet high, and consequently should be placed on the ground level. It is an excellent machine to use when it is desirable to convey the vapor from the tower above the adjoining buildings, or where the tower must be at some distance from the engine room and such a location renders inconvenient the transmission of power to the fan of a fan tower. In this tower the arrangement of filling is the same as that already described, except that it is placed at the extreme bottom of the tower, and air is allowed to enter around the piers that support the structure. The distributer is the same as that used with the fan towers, and the stack is connected to the top of the tower by means of a conical section. Two or more of these towers can be operated in a battery with the same results as when a single tower is employed.

The condensing apparatus shown is the Alberger barometric condenser, and is especially suited to large engines or to stations containing a number of engines which may be exhausted into one condenser.

It will be seen that the circulating pump derives its supply of water from the cold well of the cooling tower and discharges into the barometric condenser, being assisted by the vacuum in the latter. The water there condenses the exhaust steam from the engines and falls down the barometric tube against the atmospheric pressure to the hot well; from the latter it is removed by the hot water pump and discharged to the distributer of the cooling tower. After falling through the cooling tower and becoming cooled by the evaporation caused by contact with the ascending air, it finally reaches the cold well, cooled for re-use in the condenser. In this tower and in the fan tower, when used in connection with steam condensers, the water produced by the condensation of the exhaust steam is sufficient to compensate for the evaporation in the tower, and none need be supplied to the system. There is, on the contrary, a slight overflow which carries with it the oil from the engine cylinders, and in this manner constantly cleans the system of oil that would otherwise accumulate in the hot well. There are no places in the cooling tower which form hiding places for the oil, and the constant overflow maintains a uniformly operative condition of the entire apparatus.

A. M. Crane & Co., Incorporated.—An important change has just been made in the organization of A. M. Crane & Co., Incorporated, The Rookery, Chicago. The firm of Gardner & Robinson, Monadnock Block, Chicago, have consolidated their interests with those of Crane & Co., and the business of the two firms will hereafter be conducted under the name of A. M. Crane & Co., Incorporated. The officers will be as follows: A. M. Crane, president; C. R. Robinson, vice-president; W. A. Green, treasurer, and B. M. Gardner, secretary and assistant treasurer. Both these firms have been operating along the same lines and each has built up a large business. The consolidation now accomplished will enable them to greatly extend their operations and engage in transactions of much greater magnitude. They will conduct a business as iron and steel merchants, handling almost all lines of iron and steel products in both raw and finished forms. They will continue the agencies which they have heretofore held, but will also be in a position to conduct a general business in furnishing material to large consumers. They have established foreign connections and have especially good facilities for importing billets, structural shapes, and other material for which the demand is now in excess of the domestic supply. A feature of their business will be conversion arrangements between manufacturers.

Notes from Great Britain.

The Finance of the Rolling Stock Combine.

LONDON, April 12, 1902.—In my dispatch last week I had not enough time to look up the actual finance of the five concerns that have amalgamated. The largest is the Ashbury Railway Carriage & Wagon Company, formed in 1862 with an authorized capital of £288,042, of which has been issued:

180,000 "A" shares, at 19 shillings per share	£171,000
108,042 "B" shares, at 12 shillings per share	64,825
Total	£235,825

In addition to these there are outstanding debentures amounting to £60,000, bearing interest at 4 and 4½ per cent. The company have accumulated a reserve fund of £40,000. Each share in the Ashbury Company is deemed to be of the value of £1 14s. 8d. Any shareholder in the Ashbury Company is entitled, in lieu of ordinary shares, to receive 5 per cent. preference capital in the combine. Put more tersely, it may be said that the Ashbury shareholders are enriched to the extent of £136,053. The second most important company is that of Brown, Marshalls & Co., Limited, whose capital is £100,000, in 50,000 £1 ordinary shares and 50,000 cumulative 5 per cent. preference shares. Since the reconstruction of this company dividends of 10 per cent. have been paid, with an additional 5 per cent. in the form of a bonus for the year ended June 30, 1901. The company's reserve fund amounts to £35,000. To the ordinary shareholders will be issued for every fully paid up £1 share one and one-half ordinary shares in the combine, and to the preference shareholders for every fully paid £1 share one 5 per cent. preference share of £1 in the combine. The Lancaster Railway Carriage & Wagon Company, Limited, were originally formed in 1863 as the Lancaster Wagon Company, Limited, but in 1892 the name was changed. The authorized share and loan capital is £263,200, of which there is at present in issue £169,615, as follows:

4 per cent. debenture stock	£43,200
23,070 ordinary shares of £5 each, fully paid	115,350
11,065 ordinary shares of £5 each, £1 paid	11,065
Total	£169,615

For the past five years a dividend of 10 per cent. has been paid, with an additional bonus of 5 per cent. for the year ended March 31, 1901. The reserve fund of the company amounts to £110,000. For each ordinary fully paid share in the Lancaster Company will be issued seven and one-half ordinary shares of £1 each in the new company. In addition a sum in cash of £9481 is to be paid to the company. The Metropolitan Railway Carriage & Wagon Company, Limited, were formed in 1862, but were reconstructed in 1896 under the same name. The authorized and issued capital is £150,000 in £5 shares. During the 40 years' existence of this company they have made distributions averaging about 12½ per cent. per annum, the dividend for the year ended June 30, 1901, being at the rate of 15 per cent. In addition to the good dividends paid a reserve fund has also been accumulated, now valued at £105,000. Under the amalgamation scheme shareholders will receive seven and one-half ordinary shares of £1 each, while the company as a whole receive a cash bonus of £7500. Lastly come the Oldbury Railway Carriage & Wagon Company, Limited, established in 1847. They have, however, been known under their present name only since 1886, when they took over an old concern known as the Railway Carriage Company. The authorized and issued capital is £120,000 in 15,000 £4 cumulative 6 per cent. preference shares and 15,000 £4 fully paid ordinary shares. In the last five years dividends of 15 per cent. have been distributed and a reserve fund built up of £75,000, which has been invested in the business. For each ordinary fully paid share in the Oldbury Company seven and one-half shares of the amalgamated company will be exchanged, and for each 6 per cent. preference share an equivalent amount at par of 6 per cent. preference capital in the amalgamated company is given. As I stated last week, the authorized capital of the new company is £1,500,000, but share capital has

only been distributed to the extent of £864,802, divided as follows:

6 per cent. preference shares of £1 each, fully paid....	£60,000
5 per cent. preference shares of £1 each, fully paid....	50,000
Ordinary shares of £1 each.....	754,802
Total.....	£864,802

In addition to this there is an aggregate debenture stock of the amalgamating companies amounting to £107,250, which it is proposed to pay off at the earliest opportunity. If the net profits of the combine are exactly equal to those secured by the separate companies there would be a profit of £137,000, which, after providing for preference dividends, &c., should yield to the shareholders 17 per cent. The new company also start with the accumulated reserve funds amounting to £365,000. The more these figures are examined the more does it strike one that this is a good instance of what can be accomplished by conservative finance. There appears to be very little water in the whole concern.

A Big Contract Looming

Tenders will shortly be invited from contractors accustomed to the execution of large marine works for the construction of an outer harbor at the entrance to the Port Adelaide River in South Australia. The proposed harbor will comprise over 4,000,000 cubic yards of dredging and limestone, sand and clay, and the construction of 1500 feet of wharves and stone revetment walls for the berthing of steamships in the harbor. The work will also include the reclamation of a large area of foreshore with the dredged materials. Port Adelaide is at present touched by a few important lines of steamships, the principal being those which travel from Colombo via Albany and Melbourne. It is hoped, however, that the new alterations will lead to changes in the routes taken by other large steamship lines.

Chinese Railways.

It is stated with some show of authority that the Imperial Bank of Russia, acting for the Manchurian and Eastern Chinese railways, has secured an option of purchasing the various Belgian railways and other interests in China. In the present instance Russian influence is not materially advanced, inasmuch as these Belgian railways have generally been understood to be largely supported by Russia.

A Trade Unionist Converted.

W. Abraham, M.P., the labor member of Parliament, sitting for the Rhondda division, South Wales, has recently been visiting your country. As he is a trade unionist official, the result of his examination is interesting. Addressing his own constituents this week he described what he had seen at the Illinois Steel Works. He was evidently immensely impressed with the labor saving contrivances to be seen there. For the rest, I may quote his own words: "The capitalists of America would not put up with the second best of anything, and whenever new plant was invented they calculated the purchase cost to them and threw away machinery that would be used in England for 10 or 15 years longer. It was the duty of the capitalists in this country to find first of all the plant, and then the workers could be taught to regulate machinery instead of acting like machines themselves, as they had done too long. There was no clear sentiment in America, where the people believed in the radical principle that there should be no chains of formality to tie a man down to the circumstances of his birth, and every man was invited to ascend, and was valued according to his efficiency and the wages he earned. The governing law of labor there, whether they liked it or not, was the survival of the fittest. There were strong trade unionists in America, and they were allowed to bargain for their fellow men with the capitalists as to the price of work, but no interference was tolerated as to the amount of work to be done. Every workman was as free as the birds of the air to do all he possibly could, and if he did more than an ordinary day's work he was paid a bonus as an inducement. That was the best side. But, on the other, when a workman failed, after, perhaps, long years of faithful service, owing to old age or anything else, he was thrust aside and a younger man put in his place. That was a state of things trade unionists in this country did not like, and the relationship between capital and labor in America was very different from what it was in Great Britain. If, however, England was to cope with other countries, and especially with America, she must admit the American plan, and if the capitalist laid down the machinery he would do all he could to dispel the prejudice against it in the minds of workers."

Imported Steel Billets.

Statistics are now available showing exactly to what extent this country imported steel billets last year. The largest importer is, of course, Liverpool, which received 16,432 tons from Holland, 15,413 tons from the United States and 2632 tons from Belgium. Manchester received 20,886 tons from Holland, 3171 tons from Germany and 2912 tons from the United States. London received from Sweden 4115 tons, from Holland 1717 tons and from Belgium 1525 tons, and several smaller quantities from other countries. Middlesbrough received 8361 tons from Germany, 648 tons from Belgium and 7500 tons from the United States. Swansea received 1469 tons from Germany, 4023 tons from the United States, 2152 tons from Sweden and 2922 tons from Holland. But, with the exception of Liverpool, by far the largest importer (as in former years) in the whole of the United Kingdom is Newport, which received 6308 tons from the United States, 10,694 tons from Belgium and 13,811 tons from Holland, being a total of 30,813 tons, which, compared with the importations into Newport of 27,008 tons in 1900, shows an increase of 3005 tons. This large growth, as far as Newport is concerned, is undoubtedly due to the local demand for the manufacture of plain and galvanizing sheets, tin plates, wire and nail rods and other similar articles, and with the establishment here of the new works of John Lysaght, Nettlefolds, and other cognate industries, for which Newport offers the advantages of cheaper coal and deep water frontage, with direct oversea carriage, there is every prospect of its still more largely developing in this trade, and especially with the cheap coal shipping charges and ocean lines of steamers now running from Newport to the River Plate, Africa, China, Japan, Brazil and India.

Cast Iron or Steel?

The Manchester Corporation are just now much concerned as to whether cast iron or steel pipes should be employed for their new water mains. It has been stated that if steel were substituted for cast iron, especially steel pipes such as are made in Germany, there would be a saving on the new aqueduct, 45 miles in length, from Thirlmere to Manchester, of $500,000. The chairman of the Water Works Committee is of a different opinion, however, and has issued a statement to the members of the Council, giving his point of view, which is doubtless inspired by his technical advisers. The gist of the committee's statement is as follows: Two years ago the committee determined to lay steel pipes over the bridges and at some other suitable places where they could be got at and examined for cleaning and, if necessary, recoated with composition to preserve them. There was no experience of the use of steel pipes as water mains, either in this or any other country, that could be obtained which would justify the committee in using steel pipes to be buried underground; while on the other hand the committee have a thorough knowledge of cast iron pipes now laid in Hyde Road in connection with their present works. It is explained that Mr. Hill, the engineer, has made a careful inquiry into the matter and the result is as follows: Estimated cost of cast iron pipes for the entire length of aqueduct, based on the tenders already accepted, £320,000; estimated cost, based on the lowest tender, for steel pipes, £396,255—a saving in favor of cast iron pipes over steel of £76,255; estimate based on the next lowest tender, which is the one accepted by the committee, £454,561, a saving in favor of cast iron pipes over steel of £134,561. Mr. Hill's investigation shows a saving in favor of cast iron pipes over steel of £83,000. The statement concludes: "There would, of course, be certain deductions to be made for saving in carriage and in making joints, which, however, would not be a very serious item. The contracts for pipes for the second line are let, and they

are now being delivered at a satisfactory rate. The committee have been making inquiries for the last two years from various persons, and they will continue to make inquiries during the next two years before any steps are taken to procure the pipes for the third line."

Dividends and Profits.

The net profit during the year 1901 of the English firm of Babcock & Wilcox amounted to £157,267. Deducting interim dividends at the rate of 3 per cent. on the preference shares and at the rate of 6 per cent. on the ordinary shares, a further dividend of 3 per cent. on the preference shares and 9 per cent. on the ordinary shares, free of income tax, is paid. The new marine works of this company are now completed and in active working order. Among other smaller marine orders the boilers for the naval ships "Hermes," "Challenger" and "Odin" are being constructed in the Babcock & Wilcox yard. Large additions are also made to the reserve fund.

C. & W. Walker, the well-known gas plant manufacturers, announce net profits on the year's trading, after deducting debenture interests and providing for reserves, depreciation, &c., amounting to £23,637. Ten per cent. upon the ordinary shares is paid, with a 10 per cent. bonus. This does not look as if electrical works are knocking out gas plants.

The Shelton Iron, Steel & Coal Company announce a loss on the year's trading of £4730, largely due to the fall in prices and to German and Belgian competition. In addition, the company have had to face the results of two unfortunate accidents in their collieries.

Interesting to Welshmen.

There are doubtless many Welshmen who will remember Lewis Dillwyn, who sat in Parliament for so many years, and who, of course, was one of the characters of South Wales. He established himself in business over 40 years ago as Dillwyn & Co., at Llansamlet, near Swansea, and his spelter works were famous. The D. & Co. brand of spelter still retains its reputation. The announcement is now made that the business is to be floated as a joint stock company with a share capital of £60,000, divided into 6000 preferred shares of £5 each, carrying a cumulative dividend of 6 per cent., and 6000 ordinary shares of £5 each. The annual output for the last three years has exceeded 6000 tons. The net trading profits, after payment of all charges, has averaged during the past five years £9485. Since the death of Lewis Dillwyn the business has been carried on by Miss Dillwyn in partnership with John Corfield.

The Quarter's Trade.

Notwithstanding the more or less sectional activities created by abnormal circumstances in Germany and America, the quarter's trade taken in the mass has not been a particularly great success. Compared with last year, there is a drop in the exports of machinery and mill work and of new ships. The figures may be set out as under:

	Three months ended March 31.—			Increase(+) or decrease(—) in 1902 as compared with 1901.	Increase(+) or decrease(—) in 1902. as compared with 1900.
	1900.	1901.	1902.		
Metals and articles manufactured therefrom (except machinery and ships)	£11,684,980	£9,404,514	£9,410,764	+ 6,250	— £2,274,216
Machinery and mill work	4,764,901	4,259,209	3,971,419	— 287,790	— 793,482
Ships, new (not registered as British)	1,194 918	3,572,456	1,733,604	— 1,838,852	+ 538,686

Of these exports, the following went to America:

	Tons.	Value.	Average value per ton.
Pig iron	24,687	£103,995	£4.2
Bar, angle, &c	1,087	21,982	20.2
Wire	1,050	23,090	22 0
Tin plates	20,669	276,726	13 3
Cast and wrought, &c	818	14.790	18.0
Unwrought steel	4,631	91,154	19.6
Steel manufactures	63	18,803	298.4
Totals	53,005	£550,556	£10.3

I presume the large exports of tin plates indicate that South Wales makers are filling contracts which they obtained during the strike in your country toward the end of last year. On the whole, these figures confirm me in the prophecy I ventured upon in the early part of this year, to the effect that trade over here in the near future was almost certain to decline. I am further confirmed in this view in reading the report of the Birmingham quarterly meeting of the Midland iron trade. There was clearly every encouragement to the makers to stiffen their prices, but, as a matter of fact, neither sellers nor buyers were inclined to be sanguine of the American situation, and comparatively very little trade was done. There was a marked slackness about the whole proceedings. In the unmarked bar section competition is fierce, and prices are weak at about £6 7s. 6d., special qualities realizing about £6 15s. Marked bar makers maintain their standard at £8 10s. Their mills are running fairly regularly, but there is not sufficient business to warrant any increased production. The galvanized trade, however, have had a thoroughly good time, the export of galvanized sheets having recently advanced by leaps and bounds. The Gas Strip Association has been expecting great things on account of the coronation, but as a matter of fact orders are much below expectations. In Scotland, makers of finished iron, while relieved from stringent foreign competition find the home trade unusually slack. Short time is being worked at most of the leading mills. All eyes are now turned toward South Africa, and a termination of hostilities is most anxiously looked for by responsible business men. The following prices are those recognized in the Midlands, and afford a fair indication of what prices are ruling in this country at the time of writing: Pig iron: Staffordshire cinder forge, 48 shillings to 48 shillings 9 pence; part mine, 52 shillings 6 pence to 54 shillings; all mine, 57 shillings 6 pence to 60 shillings; best ditto, 77 shillings 6 pence to 80 shillings; cold blast, 95 to 100 shillings; Northamptonshire, 50 shillings to 52 shillings 6 pence; Derbyshire, 51 shillings 6 pence to 52 shillings 6 pence; Lincolnshire, 53 shillings 6 pence; North Staffordshire, 53 shillings 6 pence. Finished iron: Marked bars, £8 10s.; Earl of Dudley's brand, £9 2s. 6d.; second grade, £7 10s.; common unmarked bars, £6 7s. 6d. to £6 10s.; North Staffordshire bars, £6 10s. to £6 15s.; angles, £6 15s. to £7; sheets, singles, £7 12s. 6d. to £7 17s. 6d.; doubles, £7 15s. to £8; trebles, £8 7s. 6d. to £8 12s. 6d.; galvanized corrugated sheets, f.o.b. Liverpool, £11 15s. to £12; hoop iron, £7 5s. to £7 10s.; nail rod and rivet iron, £7 5s. to £7 10s.; gas strip, £6 15s. Steel: Bessemer billets, £4 17s. 6d. to £5; best Siemens billets, £5 2s. 6d. to £5 5s.; mild steel bars, £6 10s. to £7; steel plates, £6 15s. to £7 5s.; steel girders, £6 to £6 5s.; steel angles, £5 15s. to £6 5s.

American Locomotives in West Australia.

The keen discussion which has been aroused by the report of the Egyptian Government upon British and American locomotives continues, and information upon the subject is greedily snapped up. The latest is a report by the West Australian Government Railways and Tramways for the year ended June 30, 1901. This report states that during 1901 the demand for haulage power was so acute and the facilities for repairs so inadequate that it became necessary to take steps to meet the emergency by extraordinary means. In view of the long period required by British contractors in which to complete orders, it became necessary to look elsewhere. The ultimate result was that Burnham, Williams & Co. of Philadelphia, U. S. A., received a cable for the supply of 20 Baldwin compound heavy locomotives, seven months being given in which to deliver the engines at Fremantle. Although it is necessary specially to edu-

cate the drivers to operate these engines, very good results are being obtained from them. The paragraph concludes with the remark that had the orders been given to British contractors in the usual course a period of probably two years or more would have elapsed between placing the order and delivery of the locomotives.

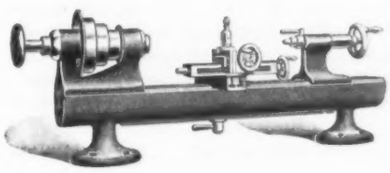
S. G. H.

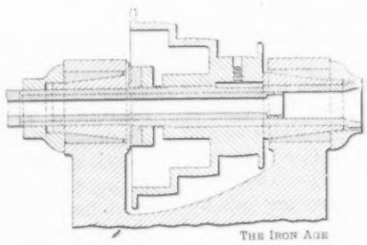
The Cape to Cairo Railway.

According to advices just to hand, the Cape to Cairo Railway has been surveyed as far as the Zambesi, where a great steel bridge, having one span of 500 feet, will carry the line across the river at the Victoria Falls. The whole section from Bulawayo to the Zambesi—275 miles in length, or nearly 1700 miles from Cape Town—is expected to be opened next year. Locomotives for contractors' purposes are now running on it for a short distance north of the present terminus, and a railway exploration party has been dispatched over the railway route beyond Victoria Falls as far as Tanganyika. For 40 miles north of Bulawayo the earth works are more or less complete, bridging work on the Victoria Falls section is in progress, and about 5 miles of line are finished. The work of connecting the Bulawayo and Salisbury sections is also progressing rapidly, and rails are already laid from Salisbury to Sebakwe, a distance of 60 miles. From the Bulawayo end of this line the railhead has reached the Arguza River, so that when this gap is filled in and the line completed trains will be able to run from Cape Town to Delagoa Bay via Bulawayo, Salisbury and Umtali.

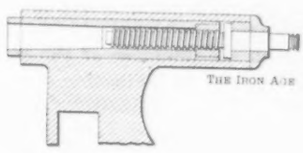
The Fenn-Sadler Bench Lathe.

A bench lathe having several unusual features in a machine of this type has been designed by the Fenn-Sadler Machine Company of Hartford, Conn. The bearings are made of a special high speed composition metal. The spindle has 1⅛-inch front and 1-inch rear bearings. The front end is hardened and ground so as to insure the true running of the spring collets. The bearings are 2 inches long and are made tapering and split to take up wear. The draw bar has a 33-64-inch hole through it. The cone pulley is made with three steps, 1⅛-inch face. The tail stock spindle is bored for No. 2 Morse taper. The bed is 32 inches long, will take 18 inches between centers and the swing is 7 inches. The compound rest has a travel of 6 inches in one direction, 2½ inches in the other, and will swivel to any angle. The construction of the head and tail stocks is shown in the sectional drawings.





Head Stock Section.



Tail Stock Section.

THE FENN-SADLER BENCH LATHE.

Westinghouse Electric & Mfg. Company.—The Westinghomse Electric & Mfg. Company will begin at once to construct new buildings at East Pittsburgh, the completion of which will greatly increase the size of the works there. The new buildings will be known as the east extension, plans for which were drawn two years ago. They involve the building of a river wall along the banks of Turtle Creek from a point near Turtle Creek Station to Brinton Station, below the works of the Westinghouse Machine Company. Arrangements have also been entered into with the Pennsylvania Railroad whereby a special railroad line will be built from East Pittsburgh to the Westinghouse foundries which are now being established at the town of Stewart, several miles to the east. This railroad will be built for the exclusive use of the Westinghouse companies. The construction of this large undertaking has been intrusted to James Stewart & Co. of Pittsburgh, St. Louis and New Orleans, whose remarkable achievements in erecting, in record time, the new works of the British Westinghouse Electric Company, Limited, at Manchester, England, for several months have been the theme of general attention in the English and American press.

The Production of Wire Rods in 1901.

According to the report of the American Iron and Steel Association the production of iron and steel wire rods in the United States in 1901 amounted to 1,365,934 gross tons, against 846,291 tons in 1900, 1,036,398 tons in 1899 and 1,071,683 tons in 1898, showing an increase of 519,643 tons, or over 61 per cent., in 1901 as compared with 1900. Of the total production in 1901 1,365,459 tons were steel and 475 tons were iron rods. The following table gives the production by States in the last three years:

States.—Gross tons.	1899.	1900.	1901.
Massachusetts, Connecticut, Rhode Island, New York and New Jersey	139,945	134,502	176,101
Pennsylvania	319,058	240,533	386,037
Kentucky, Alabama and Ohio	312,620	244,731	422,679
Indiana and Illinois	264,775	226,525	381,117
Totals	1,036,398	846,291	1,365,934

Pennsylvania made the largest quantity of wire rods in 1901, with Illinois a close second, Ohio third and Massachusetts fourth. Seven other States—Rhode Island, Connecticut, New York, New Jersey, Kentucky, Alabama and Indiana—also rolled wire rods in 1901. With the exception of Rhode Island, which first rolled rods in 1901, all the States named also produced rods in 1900.

L. C. McFatridge, Henry Rhodes, Jack Hobbs and others of Atlanta, Ind., are organizing the Atlanta Rolling Mill & Tin Plate Company for the purpose of reestablishing the tin plate industry in the Atlanta Steel & Tin Plate plant, recently dismantled by the American Tin Plate Company. They have in hand a bonus of $25,000 from the city, and have received subscriptions for $75,000 worth of stock. It is their intention to incorporate the company with a capital stock of $150,000 and to install a modern four-mill plant at first, which will later be increased to six mills. The power plant will comprise 1000 horse-power of engines and boilers. No equipment has as yet been purchased. Address communications to L. C. McFatridge.

About 40 of the superintendents of the various plants of the constituent companies of the United States Steel Corporation located in the Mahoning and Shenango valleys are making an inspection of these plants. It is probable that the trip will be extended to works located in Indiana, Illinois and Wisconsin. Included in the party is W. E. Corey of the Carnegie Steel Company.

The Federal Bankruptcy Law.

WASHINGTON, D. C., April 29, 1902.—Chairman Ray of the House Judiciary Committee has completed the favorable report upon the pending bill to amend the Federal bankruptcy law which he was recently authorized by the committee to file. The document presents a clear and comprehensive analysis of the amendments proposed by the bill and of the manner in which they will meet the shortcomings of the Federal statute which have been developed during the three years in which it has been in force. Mr. Ray says, in part:

"There have been laid before the committee resolutions and communications from more than 20,000 manufacturing and producing industries, merchants, wholesale and retail; credit men's and other business associations, lawyers, judges and business men generally, representing wholesale and retail dealers, emphatically approving the law, asking its retention and approving the amendments suggested by this bill. Of all communications received on the subject less than 10 per cent. are opposed to the bankruptcy law, and these, in the main, place their opposition on the ground of the defects in the law sought to be remedied, and which will be remedied if these amendments are adopted. These communications are not the result of concerted action for the retention of the law, but are the result of a desire on the part of the Judiciary Committee to fully ascertain the sentiment of the country on the question of the retention or repeal of the law. Near the close of the Fifty-sixth Congress the chairman of the Committee on the Judiciary set out something like 15,000 inquiries indiscriminately throughout the United States addressed to all business interests, wholesale and retail, merchants, lawyers, judges, &c., asking their opinion of the law and the advisability of its retention, and also asking their approval or disapproval of the amendments proposed, and which amendments are in substance those reported by the committee. There was no selection except to direct inquiries to the leading business houses, wholesale and retail, and the leading lawyers and business men of the country. It is conclusively proved that the business interests and the people of the United States approve and demand the retention of the bankruptcy law, and also desire these amendments, which are in the interest of honest dealing. The amendments proposed are not numerous, but are such as experience has demonstrated to be essential.

"The first amendment will make the law more uniform and equitable by providing that where insolvency is the question at issue assets claimed to be exempt shall not be counted in ascertaining the aggregate of the debtor's property.

"The second amendment simply authorizes what is now done by the courts—that is, it authorizes the court to allow additional compensation when the business of a bankrupt is conducted for a limited period by the receiver, marshal or trustee in the interest of the creditors.

"The next amendment makes the equivalent acts of a general assignment by an insolvent person, a voluntary accounting of an insolvent partnership by action brought by one of the partners, and an application for a receivership of an insolvent corporation each acts of bankruptcy. This makes the law more uniform, and will reduce many of the inequities now practiced on creditors.

"The next amendment simply provides that those corporations which cannot be adjudged involuntary bankrupts may become voluntary bankrupts on the petition of an officer or stockholder duly authorized at a meeting called for that purpose by a vote of the majority in amount of the total stock of the corporation, and adds mining corporations to those now covered by the law.

"As a safeguard and to prevent injustice it is provided by a further amendment that the bankruptcy of a corporation shall not release its officers, directors or stockholders as such from any liability under the laws of a State or Territory or of the United States. That is, if these officers or any of them by wronging or violating the law of the State have incurred any liability they are not to be discharged from such obligations or liabilities.

"The next amendment, Section 5 of the bill, makes definite and certain the purpose of the law as it was framed, to wit: That the words 'in contemplation of bankruptcy' mean a present or future state of insolvency and purpose to take advantage of the law. The amendment is necessary because the courts have held that the words 'in contemplation of bankruptcy' mean with a view to the actual filing of a petition, and therefore many men have been discharged who ought not to have been, because it was impossible to prove that they committed the fraudulent acts mentioned at a time when they had in mind the filing of a petition in bankruptcy, although they did have in mind a present or future state of insolvency and committed the acts for the purpose of defrauding their creditors. This amendment also provides four additional grounds for refusing a discharge in bankruptcy: 1, Obtaining property on credit on materially false statements; 2, making a fraudulent transfer of property: 3, having been granted or denied a discharge in bankruptcy within six years; and, 4, having refused to obey the lawful orders of the court, or having refused to answer material questions approved by the court. No person who has been guilty of any of these fraudulent acts should be discharged, and a person who has refused to obey the order of the court ought not to be discharged, and it is quite clear that no person should have the benefit of the act as a voluntary bankrupt oftener than once in six years. Some men in some of the large cities have made bankruptcy a profession, and it is proposed by the amendment to stamp out these practices.

"The next amendment provides that liabilities for frauds, &c., as described in the act shall not be released by the discharge. As the law now is these liabilities must have been reduced to judgment or else the bankruptcy is discharged. This amendment is in the interest of justice and honest dealing and honest conduct. This amendment further provides that a discharge in bankruptcy shall not release the bankrupt from liability for alimony due or to become due the wife, or for maintenance or support of wife or child, or for seduction of an unmarried female, or for criminal conversation. It seems to the committee, and this is the universal sentiment, that the bankrupt ought not to be discharged from liabilities of this description.

"The next amendment shortens the time for joining issue in involuntary cases. The expeditious disposition of an estate in bankruptcy is what all creditors desire, and this amendment is in the interest of all parties and simply prevents undue delay.

"The next amendment permits the wife to be examined as a witness as to business transactions to which she is or has been a party. In some of the States the wife may now be examined the same as any other witness. In other States she cannot be, and this amendment, carefully guarded by a proviso, simply allows her examination as to business transactions to which she has been a party. To this there can be no reasonable objection.

"The next amendment is in the interest of the speedy setlement of bankrupt estates. It has been held that actions to recover property belonging to the estate and fraudulently withheld or disposed of must be brought in the local courts. In great cities this works a practical denial of justice, as the calendars of the State courts are many times years behind, and it is conceded that in the city of New York a case cannot be reached for trial in less than from two to three years after the action is brought, unless for some reason it is preferred.

"The next amendment gives a larger fee to the clerk. It is conceded on all hands that the present fee is so small that the clerk cannot afford to do the work required of him. The increase given by this amendment is very small, indeed, and cannot be reasonably objected to.

"The next amendment, Section 12 of the bill, is the most important of all. Under the holding of the Supreme Court of the United States in Pirie *vs.* Chicago Title & Trust Company (182 U. S., 438), that Section 60, subdivision *a*, is a definition of a preference, it fol-

lowed that payments made in good faith and other *bona fide* transactions after actual insolvency, though in due course of trade and business and without knowledge or reasonable cause to believe that a preference was intended, must be, under Section 57 *g*, surrendered before a creditor who received such a payment could prove the balance of his debt. This was never intended by the framers of the law, and it works obvious injustice and is the source of 99 per cent. of the objections to the law. There is a very urgent and widespread demand for such an amendment as will obviate this menaced trade. The original Ray bill (H. R. 4310) attempted to do this, but left a loophole in that only voidable preferences, as defined in Section 60 *a* and *b*, must be surrendered, whereas some fraudulent transfers (Section 67 *e* and Section 70 *e*) might be retained and the debt still proven. This clause, Section 57 *g*, has therefore been modified by adding words referring specifically to creditors who have received an advantage, void or voidable, under Section 67 *e* or Section 70 *e*. There are no other sections in the law which provide for suits to recover back from creditors or other persons property (which includes money) improperly transferred. The change results, therefore, in that only those payments or transfers which could be recovered back by suit must be surrendered under Section 57 *g*. This change will also settle the animated and unfortunate controversy over the meaning and effect of Section 60 *c*.

"The next amendment puts the four months' clause in subdivision *a* instead of subdivision *b*, and where it ought to be. As the law now stands, a preferential mortgage may be given and the creditor preferred, by withholding it from record four months, be able to dismiss the trustees' suit to recover the same, although it was recorded within the four months' period.

"The next amendment simply provides that the trustee shall not be compelled to pay the accrued taxes on the homestead set off to the bankruptcy from the balance of the estate.

"The further amendment to Section 64 of the act simply provides that the creditor may be allowed the reasonable expense of reclaiming property illegally transferred or concealed.

"The next amendment is in line with the others, providing concurrent jurisdiction in the State and the United States courts, and is in the interest of a speedy settlement of estates.

"The last amendment is one generally demanded, and is in the interest of all persons who deal with property. It requires the clerks to prepare and keep indexes of all petitions and discharges in bankruptcy and to issue certificates in relation thereto when required. It also requires that these be kept open to inspection and examination. It is frequently desirable to know whether a person has filed a petition in bankruptcy, and also whether he has been discharged, and it is many times impossible within a reasonable time to ascertain these facts in the absence of convenient indexes.

"Annexed hereto is a more complete analysis of these proposed amendments, useful and convenient to the lawyer, and in same attention is called to the decisions of the courts relating to the amended sections.

"In proper cases and under proper restrictions those who have been unfortunate in business should be released from their debts on surrendering all their property to their creditors. But the law should be so framed as to prevent injustice and improper and indiscriminate discharges, and should also prevent its being availed of by the professional bankrupt or the dishonest debtor.

"The involuntary features are most commendable, for through their instrumentalities fraudulent and unjust preferences are prohibited, and there is greater confidence in the business world. Much of the fault finding with the bankruptcy law has come from those who, having claims against some insolvent person, have been unable to collect for years (and these persons knew that they could not collect), but they have seen the debtor discharged under the bankruptcy law and have seen him re-enter the business world, and by the exercise of his talent and industry become a valuable factor in the business world. These debtors could never have thus re-entered business had it not been for the bankruptcy law, and this fact the creditor overlooks. He seems to think that but for the bankruptcy law he would have been paid under this improved condition of the debtor.

"That dishonest men do avail themselves of the law and by fraud and perjury secure discharges cannot be denied, but these instances are very rare, and when we contrast the great army of honest and industrious men who have been put upon their feet through the instrumentalities of the bankruptcy law with the very few dishonest persons who have been discharged under it, we must all concede that the law is wise and productive of great good and ought to be retained, and amended when experience shows that amendments are necessary in the interest of the business world."

The Judiciary Committee expects to secure consideration for the amendatory bill at an early date, and Chairman Ray is confident that it will pass the House at the present session, and that it will become a law before the end of the present Congress. W. L. C.

Lord Kelvin on the Metric System.

George Westinghouse an Advocate.

WASHINGTON, D. C., April 29, 1902.—Perhaps the most important and generally significant testimony thus far produced in favor of the early adoption of the metric system in the United States with a view to making that system universal was given before the House Committee on Coinage, Weights and Measures on the 26th inst. by Lord Kelvin, the celebrated English scientist, who is himself a manufacturer and who has taken a leading part in the agitation in Great Britain looking to the adoption by that country of the metric units of weights and measures. The committee had already reported the Shafroth bill providing for the adoption of the system before Lord Kelvin's arrival in this country, but with a view to ascertaining the sentiment in Great Britain and to obtain some idea of the prospect of making the system universal he was asked to appear before the committee. Lord Kelvin was accompanied by George Westinghouse, whose guest he was while in Washington, and during the course of the hearing both the witness and several members of the committee addressed questions to Mr. Westinghouse, which resulted in putting into the record a very interesting statement to the effect that inasmuch as the pending bill is not compulsory in character, "nothing but good can come from it."

Lord Kelvin's testimony was unqualifiedly in favor of the early passage of the Shafroth bill, and, in addition, he held out the strong hope that Great Britain would speedily follow the United States, thereby making the adoption of the system practically universal in view of the recent action of Russia providing for its provisional adoption.

"It seems perfectly obvious," said Lord Kelvin, "that it must be for the benefit of the world that the system of weights and measures should be made world wide as soon as possible. It is perfectly clear that one system is desirable and it will be a certain benefit to all when this system is the same everywhere. The labor of calculating the measures of one country by the people of another when the work is intended for export is very well known to all manufacturers and engineers, and although, to my mind, this is not the most important argument, it is a very strong one. There is absolutely nothing in the arguments against the system which find fault with the base of the metric system and with the manner in which it was adopted. The fact is that the French philosophers and statesmen took this matter under their very effective guardianship more than 100 years ago, and it seems to me that with very great wisdom they chose a system that is almost ideally perfect.

"The argument has been made, I am aware, that the British inch has a more rational basis than the French meter. John Herschell found the British inch to be nearly a definite fraction of the diameter of the earth, and I have heard that fact brought forward in this discussion—and even Sir Frederick Bramwell consented to adopt it—as an argument against the meter,

which is said not to have been an accurately determined fraction of a quadrant measured on the earth's surface. But in reality it makes no difference how the meter was derived; the main point is that its length is now known throughout the world and that all other measurements of the metric system may be derived from it with absolute accuracy. Once granted the unit of length everything else comes naturally. In this connection I will venture to suggest that we do not use the term 'decimal system,' which I now see referred to occasionally, but simply the 'French metrical' system. We should not be ashamed to use the word 'French' nor refuse to employ the name of the people of the country to whom we are indebted for the system. We have a metrical system, or rather a metrical jumble, of our own which we should not confuse with the French metrical system.

"Just one word as to our own system. If there is not work enough to be done and you want to increase the labor of the business office, and especially of the engineers and of the draftsmen, you cannot do better than to use the British system of weights and measures. I believe I am not overstating facts when I say that one-half the time occupied by clerks and draftsmen in engineers' and surveyors' offices—I am sure at least one-half of it—is entailed upon them by the inconvenience due to the present system of weights and measures. I think it will be an enormous saving in business offices of all kinds to adopt the metric system. Nothing can be more convenient, for in no one of the departments of manufacturing or of selling do we encounter dimensions or quantities so large or so small that the French metric system may not be used with the utmost satisfaction.

"The present situation in England requires the practical use of two standards, and I think every engineering establishment on a large scale in my country is now obliged to use both the English and the metric standards in executing foreign orders. We are obliged to use the centimeter wherever metrical goods are asked for and we are putting ourselves to a great inconvenience with our double system. So far as the workman is concerned, he will undoubtedly find himself far happier and will work with greater ease with the centimeter scale than with the scale of feet and inches. I have here a scale which is a sample of nearly every scale in use in our large establishments; it has centimenters and millimeters on one side and inches and eighths and sixteenths on the other."

At this point Chairman Southard stated that the committee had noted certain statements regarding the bill to the effect that the introduction of the metric system would necessitate the displacement of certain machinery and that the incidental expense would be great, and solicited his opinion on that point. In reply Lord Kelvin said:

"I do not think it involves the displacement of any useful machinery. Measurement of a screw thread, for example, is now made for existing machines as so much of an inch. Find what this is in the metric system and change the designation if you like, but do not touch the machine. If the machine is good and convenient you will not change it at all. With regard to the suggestion that there will be a tendency to even metric dimensions, it is possible there may be some little initial inconvenience, but I believe that in a week or a fortnight this will be gotten over. It is not a great expense to procure complete sets of accurate standards in the metric system, and I am satisfied that, instead of proving an inconvenience, the change will be decidedly the reverse. In electrical work the international system of electrical units is used and everything is measured so that it is the same in America, Germany, France, England, &c., and all our terms are founded on an international system. British and American workmen work to an electric system which is founded on the scientific definitions involving the centimeter, the gram,—the unit of length and the unit of weight. While they all work on this electric system they have also to work to feet and inches and this really gives us two standards. I know that in America especially you have taken to decimalizing the inch and foot very generally, and this is really two standards, for the decimalization of the foot does not agree with that of the inch. The method is practical in certain directions, but it inevitably adds to the number of units and to the confusion of the terms."

Chairman Southard stated to Lord Kelvin that the committee had received a letter from the secretary of the Decimal Association of Great Britain in which the names of 259 members of Parliament were given as having signified in writing their willingness to vote to make the metric system compulsory in Great Britain, and that 30 or 40 more had agreed to do so, but desired their names to be withheld. In commenting on this Lord Kelvin said:

"These figures promise well for an early adoption of the reform in England. I believe there will be no question at all in carrying it out, as soon as our statesmen find a lull in party politics that will give them a chance to attend to such matters. There is a great deal of conservatism in England, and I am sorry we are not so far advanced as we would like to be. The result will be, however, that it will come to us suddenly; but while from motives of patriotism I would rather England should adopt the system first and that America should follow, yet I would very much prefer that America should lead if the end can be accomplished sooner. You may be assured that if America decides to make this reform England will follow very nearly after, and I believe that England will see in the example of a great nation like this adopting a reasonable reform which has been tested for over 100 years an argument which will be sufficient to overcome the sluggishness of the English people. With its adoption by England and America the system will be practically universal."

The Views of George Westinghouse.

During the latter part of Lord Kelvin's testimony several questions were addressed to Mr. Westinghouse, who stated that it was an error to believe that he was opposed to the metric system.

"On the contrary," he said, "I believe that if America is looking forward to procuring the commerce of the world many of these products will have to be made according to the French measurements. For instance, in France they require everything to be made according to the metric system. I think, ultimately, one system will be universally adopted and it is only a question of the manner of requiring it to be done that is involved. It seems to me that you can accomplish more by gentle pressure than in any other way. Every manufacturer in the United States is busy turning out his products according to drawings of the present system. Now it is not going to be convenient in a day, or a week, or a year even, to change all those drawings. I understand that this bill provides that the Government shall adopt the system January 1, 1904, and three years later it will be the legal system, but without compulsion, and I think nothing but good could come from such a bill."

A member of the committee stated to Mr. Westinghouse that he had received a letter from the Ball Engine Works of Erie to the effect that it would not be wise to pass the pending bill, as it would entail expense, and asked if he regarded the objection as a practical one, to which Mr. Westinghouse replied:

"No, that is not a practical objection. I think the real question before you is such reference to the time element as is consistent with changing from one standard to another. I would suggest that if you wish to make this bill effective the Government should pay 1 or 2 per cent. more for machines made in the metric system. That would be a compulsion that would be very effective indeed. The fact that the Government adopts the metric system as a standard I believe will have more to do with the question than any other."

In reply to a question as to whether the principal machine shops throughout the country were prepared to furnish their product in metric measurements, Mr. Westinghouse said:

"I think all of them would undertake such contracts. It would be simply a question of drawings."

W. L. C.

The Iron Age

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Our Exports of Iron and Steel Products During the First Quarter of 1902.

It is, of course, a matter of common knowledge that the exceedingly great prosperity of our country has led to considerable indifference on the part of our iron and steel manufacturers to the export trade, into which such energy was put in preceding years. We believe, however, that exaggerated opinions prevail as to the falling off in the volume of that trade, which makes a review of the figures for the first quarter of the current year worthy of study. Of course, their interpretation can only be a just one when it is based upon a clear insight into recent events, since statistical data are likely to reflect rather commercial developments of a remoter date.

Our total exports of iron and steel and its manufactures jumped from $105,690,047 in 1899 to $129,633,480 in 1900, and then dropped back to $102,539,799 in 1901. During the first quarter of 1902 there was a further decline, the record being $23,839,561, as compared with $26,141,090 during the corresponding quarter of 1901, thus indicating a further falling off of at least $9,000,000 for the year.

Turning to those articles for which quantities are given, we have the following figures:

Exports of Iron and Steel.

	1900.	1901.	1902, first quarter.
Iron ore, gross tons	51,460	64,703	1,004
Ferromanganese, gross tons	32	....	....
Pig iron, gross tons	286,783	81,178	11,412
Scrap, gross tons	47,283	14,199	2,871
Bar iron, net tons	14,879	19,832	3,829
Wire rods, net tons	11,930	9,143	3,172
All other bars or rods, net tons	91,130	30,684	4,038
Billets and blooms, gross tons	107,476	28,614	457
Hoop, band and scroll, net tons	3,389	1,743	699
Iron rails, gross tons	5,374	901	141
Steel rails, gross tons	356,245	318,055	28,524
Iron plates and sheets, gross tons	10,451	7,733	1,053
Steel plates and sheets, net tons	51,020	26,744	1,918
Tin plate, net tons	306	491	621
Structural iron and steel, gross tons	67,714	54,005	26,748
Wire, net tons	87,376	98,825	23,967
Cut nails, net tons	12,502	10,418	1,922
Wire nails, net tons	30,693	21,025	5,658
All other nails, including tacks, net tons	2,024	2,123	556

In a general way the exports of the cruder forms of iron and steel have dropped off sharply, that being true of pig iron and billets. The same is true to a less marked extent of finished rolled iron and steel, notably of steel rails. On the other hand, the exports of structural iron and steel have actually proceeded at an increased rate, which is naturally due to the fact that it takes a long time before orders are filled. The wire trade has well maintained its foreign shipments, the policy evidently being to hold what markets have been secured.

We know, of course, in a general way that for many months new exportation orders have been taken very sparingly in pig iron, billets, sheet bars, plates, steel rails and structural material, but this will only find an expression in the statistics of later months. The figures which we present show how long shipments persist after selling has been virtually suspended.

The exports of the more highly finished forms for which we possess only values were as follows:

Exports of Iron and Steel Products.

	1900.	1901.	1902, first quarter.
Car wheels	$172,153	$204,107	$23,507
Castings, not elsewhere specified	1,498,985	1,247,697	336,802
Pipes and fittings	5,994,521	5,116,904	1,182,257
Stoves and ranges	566,978	656,177	172,984
Cash registers	*860,622	931,984	288,914
Electrical machinery	5,286,224	5,623,442	1,440,585
Laundry machines	475,952	517,842	118,561
Metal working machines	6,210,594	3,003,871	919,635
Printing presses	1,295,379	790,559	191,053
Pumps and pumping machinery	2,750,312	2,024,937	563,712
Shoe machinery	1,028,257	1,059,145	263,805
Fire engines	24,625	26,081	3,900
Locomotives	4,468,527	4,051,434	956,786
Stationary engines	873,509	861,864	106,831
Boilers and parts of engines	1,855,398	1,495,972	464,125
Safes	121,657	134,990	34,104
Scales and balances	543,553	527,396	95,026
Locks, hinges and builders' hardware	6,067,658	5,207,378	1,835,191
Saws	311,317	325,141	66,010
Tools, not elsewhere specified	3,403,427	3,303,630	889,617
Table cutlery	54,862	38,167	6,621
All other cutlery	212,574	205,452	50,384
Firearms	1,424,630	893,737	194,751
Sewing machines	4,510,220	3,749,334	1,010,769
Typewriting machines	2,736,435	2,987,762	867,036
All other machinery	23,852,046	18,665,182	4,268,052
All other manufactures of iron and steel	16,509,375	15,000,848	3,459,085

* Not separately stated until July 1, 1900.

It will be observed that the general decline in the exports which was notable in 1901 has proceeded further during the first quarter of the current year, with a few exceptions like electrical machinery, metal working machinery, engines and boilers and sewing machines. On the whole, however, considering the exceptional conditions prevailing in this country, and the general aspect of affairs in foreign countries, we have maintained our export trade in the more highly finished forms exceedingly well.

Rated Capacity and Actual Product.

Some of the financial writers have made efforts recently to give numerical expression to the position which the United States Steel Corporation occupies as a producer of pig iron and steel as compared with the total output of the country. They have turned to the published statements of the capacity of the plants of the constituent companies, and have compared the figures thus reached with the total rated capacity of all the works in the United States. The method is plausible, but unfortunately is so inaccurate that the results of the comparison are worthless. To begin with, rated capacity is a very flexible quantity and frequently different operating officers in the same concern reach different figures. When inclined to be sanguine they are apt to take past records during brief periods as the basis for their estimate.

However, that is a minor matter. The grave mistake is that the capacity of all plants is put on a basis of equality, when as a matter of fact some of them can only run under extraordinary conditions. In other words, the modern works and the old cripples are all jumbled together. Quite a number of the latter, although carried along in the lists, are in such shape that even in booming times like these they are not running. It is quite evident that if there be segregrated from the whole rated capacity one group of modern furnaces, say, like those of the constituent companies of the Steel Corporation, a comparison figured out on a percentage basis would lead to a serious underestimate of the power of the group. As a matter of fact, at the present time with all the blast furnaces running at full pressure the output of the Steel Corporation is probably close to 650,-

000 tons per month, out of a total production of coke and anthracite pig of 1,450,000 tons per month, or a little under 45 per cent.

Our Recent Imports of Iron and Steel.

For months our market reports have referred to purchases abroad of iron and steel in various forms which were made to provide for the gaps in our supplies of domestic products. Many of these, of course, were for delivery over a considerable period and the import statistics do not yet really reflect the magnitude of the movement. Just how extensive the recent imports have been is shown in the following table, which gives the figures for those articles only which are reported by the Bureau of Statistics by weight, for the first three months of the current year, converted into gross tons:

Imports of Iron and Steel in 1902.—Gross tons.

	January.	February.	March.	First quarter.
Iron ore	63,521	73,506	82,148	219,175
Pig iron	7,883	8,307	17,184	33,374
Scrap	3,284	750	1,855	5,889
Bar iron	1,363	2,634	1,597	5,594
Rails	449	346	1,172	1,967
Hoops and bands	743	29	17	789
Steel billets, slabs and bars	5,269	2,235	6,569	14,073
Sheets, plates and taggers	481	973	619	2,073
Tin plates	7,058	6,216	5,618	18,892
Wire rods	1,275	826	774	2,877
Wire	290	504	357	1,151

The imports of iron ore were 966,950 tons, so that we are not now importing at even as great a rate. With the opening of the lakes there will, of course, be the large movement from Canada, which is a new feature this year in tonnage of any magnitude.

The imports of pig iron for 1901 were 62,930 tons, most of it, of course, ferromanganese and spiegeleisen. Now we are importing some foundry iron, which makes its first appearance in quantity in the March report.

There have been considerable sales of foreign scrap lately, so that we shall see an increase in the figures for old material soon.

The bulk of the bar iron reported is special Swedish stock. In recent years we have imported annually about 20,000 gross tons, so that the returns of the first quarter do not indicate any notable expansion.

It is well known that some larger orders for steel rails have been placed abroad. The quantities reported for the first quarter are small and were probably chiefly light rails, for which special prices have been paid for some time past.

So far as we can learn a considerable part of the imports of steel are for the re-export trade. In 1899 and 1900 we imported about 12,000 tons per annum, and in 1901 about 8000 tons. Therefore, this year we are taking considerably more.

In recent years the importations of sheets, plates and taggers iron have ranged between 10,000 and 12,000 tons per annum, so that during the first quarter we were really a little behind rather than ahead of the ordinary rate.

In 1899 and 1900 we imported about 60,000 tons of tin and terne plate per annum. In 1901 this rose to 77,500 tons owing to the strike in the summer of that year. We were importing at close to the same rate during the first quarter of the current year.

The importations of wire rods and wire are still light.

On the whole, therefore, the quantities of foreign iron and steel imported during the first quarter of the year do not reveal a very heavy movement. Enough is known of actual transactions and of receipts during April to justify the statement that the important tonnage is still to come.

The Eight-Hour Bill.

While the eight-hour bill now before Congress, making an eight-hour day compulsory in all establishments engaged upon Government work, has been thoroughly discussed, there is one feature which may be dwelt upon perhaps to some advantage. It is a safe statement that there is not a single private concern in the entire country occupied solely upon work for the Government. This means that Government work requires only a certain percentage of the manufacturing capacity of a plant, the remaining time being consumed upon work for private individuals. This being the case, an eight-hour day would immediately introduce conflicting elements which would certainly not conduce to peaceful and harmonious working. There would be two different periods of work and, in some instances, two different rates of wages. It is difficult enough to adjust hours and wages in various sections of the country; it is absolutely impossible to make men work contentedly under the same roof when two schedules are in force.

Therefore there would be conflict from the start in every place handling Government contracts. No single manufacturer could afford to place his entire plant on an eight-hour basis, even if Government work constituted 50 or even 75 per cent. of his entire output, and hold his outside customers. Every man not engaged upon a Government job and working 54 or 60 hours would promptly enter an emphatic protest. He would, with some show of justice, demand that he be placed upon an even footing with his fellows. This would certainly be the case when the work was of the same character. Nor do we believe that an even hourly rate of wages could be introduced. The man working eight hours would expect a full day's pay and would resist the attempt to curtail his earning capacity by shortening his hours and at the same time reducing his pay.

The result would be that Government work would go begging unless a guarantee could be given to the manufacturer that his entire plant would be fully occupied all the time. The chances are that he would not dare to introduce such conflicting factors into his works, especially with the knowledge that such a proceeding would surely be disastrous. He does not court additional trouble—even now every manufacturer does not tread a path of roses—consequently he would respectfully decline Government work of any kind.

Of course it is perfectly well understood that the labor leaders are pushing their demands for the eight-hour day on Government work with the deliberate purpose of using it as an entering wedge and are seeking the line of least resistance without any regard for the interests of the common good as represented by the general Government. It may cost the country more for all public works and improvements; it may lead to confusion and dissatisfaction. But they evidently regard it as an effective means of compulsion and, we believe, hope that it will furnish a striking illustration that short hours and special pay may in the end reduce the cost. If that is their idea they could certainly not have selected a more vicious method least likely to prove their case.

The Northern Iron Company.—With a capital stock of $100,000, the Northern Iron Company of Port Henry have just been incorporated in New York State. The incorporators and directors are: W. S. Pilling and Theron I. Crane of Philadelphia and W. B. Beach of New York. The company were formed to operate the Cedar Point Furnace at Port Henry, which has been leased from Witherbee, Sherman & Co. by Pilling & Crane and assigned to the new organization.

Canadian News.

An Export Duty on Nickel.

TORONTO, April 26, 1902.—John Charlton, one of the Canadian members of the Joint High Commission, made a speech in the House the other day in favor of an export duty on nickel ore and nickel matte. The matter was not under consideration, nor was anything germane to it before the House, when the member for North Norfolk launched out into the discussion of it, seizing for the purpose the opportunity of a motion to go into supply. He pointed out that for 15 years Canada had been one of the main sources of the world's nickel supply, but contended that the business of the mines had been so conducted as to give the chief benefit to labor and enterprise in the United States. The policy of the United States, he said, was to admit the matte free of duty and to impose a heavy duty on the refined article. The result was the exportation of all the matte to the other side of the border and the building up there of lucrative industries engaged in the refining of the metal. This policy, he declared, was not conducive to Canada's interests. He noticed, he said, that a new company, the International Nickel Company, had been formed to operate in connection with the United States Steel Corporation. The avowed purpose of this new company, he maintained, was to acquire the nickel property and control the nickel business of the world. He could see no reason why Canada should not refine her own nickel, and he commended the matter to the attention of the Government. He drew attention to the fact that there is already on the statute book a law providing for an export duty on nickel ore and matte, and specifying what the duty should be. It was passed in 1897, and provided as well for export duties on silver-lead and copper ores, as well as on pulp wood, but a section of the act directed that it should not got into effect until proclaimed by the Governor in Council. It has never been proclaimed; hence has never been in operation.

Another matter pertaining to the trade between the United States and Canada was brought up by Mr. Charlton in the same speech. This was the action of the United States with reference to an export duty on manila from the Philippine Islands. When the United States acquired these islands, said Mr. Charlton, it was understood that there would be no discrimination against other countries. During the Spanish occupancy of the Philippines an export duty of $7.50 per ton was levied on hemp. The United States continued this duty, but made a regulation that the duty should be refunded when the manila was imported by its own citizens. This, said Mr. Charlton, gave the Americans a great advantage in the manufacture of cordage and binder twine. There was, he said, supposed to be reciprocal trade in binder twine between Canada and the United States, but an examination of the Dingley act showed that binder twine can be entered duty free into the United States only when it contains no manila fiber. Otherwise it is subject to an ad valorem duty of 45 per cent. He suggested that Canada place a duty of ½ cent a pound on binder twine and thus, as between Canada and the United States, equalize tariffs on that commodity.

Mr. Fielding, the Finance Minister, did not give a very positive reply to Mr. Charlton. He referred to the power given by Parliament some years ago for the taxing of crude nickel exports, and said that after full consideration such a course had not seemed to the Government to be in the best interests of Canada. Whether new conditions had since arisen justifying recourse to such an impost now was a question for the Government to take under advisement. The action of the United States in regard to manila had, he said, been brought to the attention of the Government, both by the press and by parties interested. It was, he remarked, a curious condition of affairs, unlike anything ever before presented in connection with the tariff. It was, he said, engaging the attention of the Government, and what should be done about it would be determined at an early date. He begged not to be asked to say more at the present time.

Reciprocal Trade Relations.

Mr. Charlton's course of late in respect to Canada's trade relations with the United States has undergone a very marked change. For many years he was the strongest advocate in the House of a policy of reciprocity with the United States. He held that the chief obstacle to the effecting of a reciprocity agreement between the two countries was Canada's protective tariff, and deprecated every proposed change in the Canadian tariff that savored of retaliation or provocation to the United States. In particular he opposed energetically the agitation for an export duty on saw logs shipped from Canada to the United States, and did all that one public man could do to prevent the Province of Ontario passing the law which it finally adopted to restrict solely to Canada the business of manufacturing into lumber the pine logs taken from the Ontario Crown lands. He went to Washington, both at the time the McKinley act was in hand and when the Dingley act was under consideration, and had at least one hearing before the House Ways and Means Committee in regard to proposed duties that would affect Canada. It was supposed to be on account of his warm advocacy of closer trade relations between the two countries that he was selected for a place on the Joint High Commission. Quite up to the last meeting of that body he remained hopeful of a reciprocity basis being reached, and in two articles, one published in an American, the other in a Canadian, magazine, he expressed himself very optimistically as to the outcome. But lately he has given up his faith in the *suaviter* theory, and is nowadays counseling a policy of matching the tariff of the United States with one of the same kind.

The Coal and Steel Merger.

The tide of speculation in the stocks of the Dominion Coal Company and of the Dominion Iron & Steel Company has been in equilibrium, so to speak, for some time, seemingly irresolute whether to roll on or to ebb. Nearly all the publicity that has been given to these companies for some months up to quite recently has been the work of stock jobbing agencies, and he who ran might read and believe as little or much of it as he pleased. But the speculative campaign, which was undoubtedly aided and abetted by some very strong interests that might be supposed not to countenance a movement of that character, has now the substantial fact to work up or down on that the two companies have agreed to unite. This agreement was concluded, so far as the two directorates are concerned, at a meeting held in Montreal on the 15th inst., at which the following were present: James Ross, A. J. Moxham, Sir Wm. Van Horne, Hon. L. J. Forget, Hon. Robert MacRay, R. B. Angus, Hon. Geo. A. Cox, Elias Rogers, H. F. Dimock, F. S. Pearson, W. B. Ross and B. F. Pearson. James Ross, managing director of both companies, gave out the following official statement of the terms of the agreement. Under the original option the steel company agreed:

1. To pay the fixed charges of the coal company—that is, the interest on their 6 per cent. bonds, the dividend on their 8 per cent. preferred stock and the sinking fund of 5 cents per ton on the entire output to provide for the redemption of the bonds and preferred stock.

2. A 6 per cent. dividend on the common stock.

3. An allowance of $25,000 a year for the coal company's expenses, the latter company having to maintain a staff to look after their property, and for accountancy work, &c.

4. The steel company to pay to the coal company $600,000 in cash as a forfeit for the due carrying out of the terms of the lease.

5. The steel company to pay the coal company a royalty of 15 cents per ton on every ton of coal taken out of the property in excess of 3,500,000 tons in any one year.

6. The steel company to assume and pay all the debts and liabilities of the coal company, less the value of certain cash assets, which the coal company were to retain. The obligation of the steel company in this respect involved an immediate payment of about $2,000,000.

7. The property to be leased did not include all the properties of the coal company, certain valuable properties, including shops and the entire mercantile business of the coal company, being excepted.

The directors in considering what modifications of the terms of the option might be made, so as to make an ar-

rangement that would be entirely satisfactory to both companies and insure harmony between them, had to consider the following points:

1. The coal company had earned during the past two or three years $1,530,000 in excess of all their fixed charges, but none of this had been distributed among their common stockholders by way of dividend, and it was admitted by all concerned that the stockholders were entitled to this surplus in the event of the option being exercised by the steel company.

2. The ability of the steel company to raise the $600,000 and the other sums required to discharge the debts and obligations of the coal company, which, as above mentioned, would amount to about $2,000,000 more.

3. The disruption of the business now carried on by the coal company, if but part of their properties and assets were taken over, leaving still in the hands of the coal company valuable assets, including their mercantile business.

After careful consideration it was unanimously resolved by both boards that, subject to ratification by the shareholders of each company, an agreement should be entered into embodying the following terms:

a. The present agreement to be modified so as to make it include all the properties and assets of the coal company, including the $1,530,000 surplus earnings above referred to.

b. The coal company to pay off their bonds and preferred stock by the issue of $5,000,000 common stock at 120 to their common shareholders, thereby increasing their total capital to $20,000,000.

c. The steel company to be relieved from the obligation to provide the $600,000 forfeit money, and to pay the coal company a rental equal to 8 per cent. on their $20,000,000 capital stock.

Steel Shipbuilding.

At its quarterly meeting the Halifax Board of Trade passed a resolution declaring that in its opinion the Dominion Government should encourage the building of modern steel ships in Canada by a tonnage bounty.

It was announced the other day by the president of the Halifax Board of Trade that Mr. Hunter of Swan & Hunter, the British shipbuilding firm, had agreed to take a half interest in steel shipyards established in Halifax harbor. The condition is that half the capital be raised in Canada and that certain local bonuses and Government subsidies are granted. He stipulates that the bonuses shall amount to $300,000. Of this amount $100,000 is already provided by the Provincial Legislature, and Halifax citizens have approved a by-law providing that $200,000 shall be granted by the city if the works are established within the corporation limits. Dartmouth City Council is also authorized to grant $100,000 if the yards are located in Dartmouth. It is doubted that a suitable site can be secured in Halifax. Consequently Dartmouth may get the industry. Halifax may grant $100,000 if the yards are within its vicinity though outside of its bounds. Strong influences are being brought to bear on the Dominion Government to aid steel shipbuilding by a tonnage bounty. The Council of the Toronto Board of Trade has just passed a resolution approving the idea.

Minor Notes.

Negotiations have been concluded between the Deering Harvester Company, Chicago, and representatives of the City Council of Hamilton, Ont., for the establishing of a branch of the company's works in Hamilton. A bonus of $50,000 is to be the inducement. Even after this arrangement has received the approval of the City Council it must be ratified by a majority of the property owners.

Five new Mogul engines for the Canadian Northern Railway have just been turned out of the shops of the Canadian Locomotive Company, Kingston.

It is reported that the Fort Frances Hematite Company's iron property at Steep Rock, near Atikokan Station, has been leased for 50 years to certain parties from Ironwood, Mich.

While in England James Ross is said to have made a contract for the sale of 90,000 tons of steel billets.

The Canadian Pacific Railway Company have ordered additional locomotives to the value of $5,000,000.

C. A. C. J.

Trade Publications.

Conveying Machinery and Power Transmission.—A comprehensive idea of the modern method of handling materials of all kinds may be obtained from the catalogue prepared by the Link-Belt Machinery Company of Chicago. With these appliances anthracite and bituminous coal of all sizes can be stocked and reloaded more rapidly, with less expense and less breakage than by any other method. This company are exclusive manufacturers of machinery for washing coal by the Luhrig system, which is conceded to be the most perfect and economical process known for the separation of coal from its impurities, whether the coal be intended for fuel or coking purposes.

Punches and Shears.—Power punches, shears, angle and plate bending rolls, drilling machines, plate planers, forging and hydraulic presses are dealt with in a handsome catalogue issued by the Cleveland Punch & Shear Works Company of Cleveland, Ohio. All of these punches are arranged to run in either direction, and with each punch is furnished the company's regular punching attachment, consisting of an adjustable forged steel punch holder, forged steel die socket, die block, forged steel coupling and stripper, one punch and die of any size up to 1 inch in diameter. The adjustable punch holder and die socket greatly facilitate the setting of dies, and also make it possible to increase the depth of throat for light work. The cutter head of their No. 1 plate planer carries two tools, one cutting in each direction. The shifting from one tool to the other is done automatically. Tools may be fed both up and down as well as backward and forward by hand wheel and screw.

Steam Pumps.—M. D. Davidson, 43 Keap street, Brooklyn, has issued a catalogue dealing with his steam pumps, pumping engines, condensers, distilling apparatus, ash ejectors and the like. The Davidson steam pump is of the single cylinder type, simple in construction and economical in the use of steam. It will start from any point of the stroke and make a full stroke under all conditions. It will pump any fluid, giving a steady and uniform delivery under light or heavy pressures, at low or high speeds. The hydraulic ash ejector is intended for removing ashes, flue sweepings, &c., directly from the fire room by means of a pipe leading overboard through the ship's side. It avoids the unpleasant process of hoisting and dumping ashes from the deck. It can also be used as an auxiliary bilge ejector by having a separate suction pipe leading to the bilge.

Pneumatic Tools for Stone and Marble Work.—The Chicago Pneumatic Tool Company, Monadnock Block, Chicago, have brought out special circular No. 19, illustrating the line of tools they manufacture which are particularly adapted to stone and marble work. These comprise Boyer hammers for all kinds of work, from extra heavy cutting in quarries to light carving, tracing and engraving; valveless hand tools for fine work, tracing, &c.; portable stone dressing machines; Little Giant breast and screw feed drills, Chicago breast drills, &c. The circular illustrates all these tools as well as air compressing machinery, special applications of tools, methods of handling pneumatic tools on sculpture and carving, &c.

Punches and Shears.—A handsome catalogue has been received from the Cincinnati Punch & Shear Company of Cincinnati which describes and illustrates many of their punching and shearing machines. Their line now embraces sizes and types for nearly every requirement. All materials entering these machines are carefully inspected before used. The shafts are forged, the main bearing is bushed, the slide has adjustable wedge for taking up the wear, and heavier ones are counterbalanced. The clutch is dovetailed and steel faced, so that they are readily renewed when worn. A hand

wheel located in front facilitates the accurate setting of the punch and die, and in all particulars the machines are first class. Their No. E heavy fish plate punch has a 12-inch throat and will punch the heaviest fish plates with six holes to the length of 39 inches from the centers of the outside holes. It may also be arranged for general punching or used for slitting heavy plates and cutting bars. The machine is power driven or operated by an engine or motor, as may be desired.

Fan Motors.—Circulars have been received from the Holtzer-Cabot Electric Company of Boston describing their 1902 fan. This model embodies new features which add to the general working, quiet running and life of the fan. These fans are particularly neat and attractive in appearance, and are adjustably mounted so that the breeze may be sent in any direction and are perfectly clean.

Pneumatic Tools.—The Philadelphia Pneumatic Tool Company describe in a recent pamphlet the various pneumatic tools constructed by them. The new Keller pneumatic hammer presents many improvements in design. The most important detail of a pneumatic hammer is, of course, the valve which controls the distribution of air to both ends of the tool and its final exhaust. The valve in this hammer moves longitudinally with the hammer barrel, but, unlike other valves, moves in the same direction as the hammer piston and at the same time, instead of in the opposite direction, as is usually the case. On account of this feature the impact of the blow, instead of having a tendency to jar the valve off its seat, causes it to be more firmly seated. Another result is that the tool will continue to work efficiently even after the valve becomes considerably loosened by years of wear, and hence it is not necessary to be constantly repairing or renewing this vital part of the tool. This movement of the valve with the piston also renders the action of the hammer more rapid and hence more effective.

Recording Electrical Instruments.—The complete line of recording volt, ampere and watt meters, for both alternating and direct currents, manufactured by the Bristol Company of Waterbury, Conn., is covered by a recent catalogue. These instruments make continuous records, day and night, in red ink on a revolving chart.

Ball and Roller Bearings is the title of a catalogue by the Ball Bearing Company of Philadelphia. These bearings are the result of the company's long experience in the manufacture of antifriction devices, and are made with the utmost accuracy. A machine fitted with these bearings will run with a saving of from 25 to 75 per cent. of the power previously used, depending upon the nature of the machine. The roller thrust bearing has been tried under very heavy pressures with most satisfactory results.

Gasoline fire engines and fire department supplies are dealt with in a catalogue by the Waterous Engine Works Company of St. Paul, Minn.

Inspection Cars.—The Light Inspection Car Company of Hagerstown, Ind., have prepared a pamphlet describing the Hartley & Teeter light inspection cars. These cars are constructed on four wheels, so that side draft is entirely avoided and all danger of derailment eliminated. The frame is designed so as to give abundant strength with little weight. The system of bracing is such that the load is evenly distributed upon the wheels.

Ventilators.—A new 16-page ventilator catalogue of the Buffalo Forge Company of Buffalo, N. Y., fully illustrated with half-tone engravings, describes in detail the many different types and sizes of ventilators manufactured by them. This company, with their quarter century of experience in the heating and ventilating of buildings of all classes, have become thoroughly in touch with the conditions which make stationary ventilators an efficient and desirable apparatus. While the requirements of a stationary ventilator are somewhat hard to fulfill, they have been perfectly met by the new Buffalo improved ventilator. Their value when in use with the fan system is too often underestimated. In certain cases they are alone amply sufficient for proper ventilation. These ventilators are built of heavy gauge iron, and will resist any strain of reasonable magnitude they may be subject to. Many special interesting types are shown in the catalogue.

A new price-list covering their pulleys, shaft couplings, pedestals, shaft hangers and so on has been issued by Robert Poole & Son Company, Baltimore, Md.

The injectors and ejectors and boiler fittings made by the Penberthy Injector Company of Detroit, Mich., are fully described in their catalogue No. 19.

Beyer Bros. Company of Philadelphia have prepared an attractive catalogue and price-list covering their tinners' and roofers' supplies.

A large catalogue has been received from the J. I. Case Threshing Machine Company, Racine, Wis., describing their threshing machines, traction and portable engines and other agricultural machinery.

The Western Iron & Steel Company.

Application for a charter has been made at Phoenix, Ariz., by the Western Iron & Steel Company. The new company are to be capitalized at $15,000,000. The incorporators and directors named in the incorporation papers are B. F. Brennig, Marcus Pollasky, James H. Bridges, Wm. G. Bussey, Henry W. Hodge, Irwin C. Stump, Joseph W. Stanford, S. P. Thomas and A. E. Piorkowski. The articles name Phoenix as the principal place of business, with an executive and business branch office in San Francisco. The business proposed is mining, smelting and working of steel and iron in any form, making armor plate, ships and railroad locomotives. A director of the company stated to a representative of *The Iron Age* that the plans of the company are still in embryo and that it is not likely that the company will commence active operations within a year or two. Valuable ore lands, it is said, have been discovered near the State line of Nevada, and the new company have entered into negotiations with a view of ultimately controlling them. A steel plant is to be built and extensive shipyards and other consuming plants will be erected on the Pacific Coast, according to present plans. W. H. H. Hart of San Francisco is the leading spirit in the new organization. He has just returned to the West, having spent several days in New York concluding arrangements for the incorporation. Mr. Hart stated that the shipbuilding plant would probably be erected at Oakland, Cal.

Westinghouse Steam Turbines in London.—Westinghouse steam turbines are to be adopted in the electric generating station to be built for the Metropolitan Railway Company of London, the contract having just been given to the British Westinghouse Electric & Mfg. Company of Manchester. The latter are now filling a similar contract for the Metropolitan District Electric Traction Company, and as there will be a general similarity in the two stations it will be easy to arrange for connecting the two and making them interchangeable, as far as the supply of current is concerned, which feature was required by the terms of the franchises of the two roads. The Metropolitan Power Station will be located at Neasden, in the northwest of London, and will contain three sets of 3500 kw. capacity each. The Chelsea Station of the Metropolitan District Railway will contain four sets of 5000 kw. each. The electrical machinery for both stations will also be supplied by the Westinghouse Company. The current will be three-phase alternating and of 10,000 volts, to be transformed in substations to direct current for use in the car motors. It will be remembered that the matter of equipping the Metropolitan Road electrically was the cause of a long and hard fought battle before a court of arbitration between the Ganz polyphase and the American direct current systems of working, the American system, which finally triumphed, being espoused by the District Railway under the leadership of Charles T. Yerkes. The steam for the immense steam turbines in the District and Metropolitan plants will be generated in water tube boil-

ers. The aggregate power of the two plants will be 30,500 kw. It is hoped that in a year and a half the equipment will be complete and in working order. Both roads are underground.

The United Copper Company.

Articles of incorporation have been filed under the laws of New Jersey for the United Copper Company, with a capital of $80,000,000, of which $5,000,000 is to be 6 per cent. preferred and the balance common stock. Of the $75,000,000 common stock $30,000,000 is reserved in the treasury for the acquisition of new properties. The charter limits the amount of stock to be issued to $5,000,000 preferred and $45,000,000 common, except upon the affirmative vote of three-fourths of the directors of the company and holders of two-thirds of each class of stock. By a similar vote it will also be permissible to sell the entire plant. The preferred stock is to be 6 per cent. cumulative, dividends payable annually.

The incorporators of the company are A. A. Brownlee of Princeton, who is also interested in mines in Cripple Creek, Col.; Horatio W. Trumbull of Talbot, J. Taylor & Co. and John French of the law firm of Cary & Withridge, 59 Wall street, New York.

John MacGinniss, vice-president of the Montana Ore Purchasing Company, states that the new company will have in their treasury 95 per cent. of the capital stock of the following companies: The Montana Ore Purchasing Company, capital 100,000 shares, par value $25; the Nipper Consolidated Copper Company, capital 150,000 shares, par value $25; the Minnie Healey Copper Mining Company, capital 2,000,000 shares, par value $1; the Cobra-Rock Island Copper Mining Company, capital 2,000,000 shares, par value $1; the Belmont Copper Mining Company, capital 1,000,000 shares, par value $1. The company will also have as assets the $1,000,000 of the first mortgage bonds of the Montana Ore Purchasing Company and the $2,500,000 first mortgage bonds of the Nipper Company. These bonds are all that any of the companies have against them.

It is claimed that in the treasuries of the subsidiary companies there are earnings sufficient to pay the 6 per cent. dividend on the new preferred stock, so that all surplus earnings can be applied to the common stock. The subsidiary companies are producing 3,500,000 pounds of copper a month, or 42,000,000 pounds a year. John MacGinniss, vice-president of the Mountain Ore Purchasing Company and other Heinze corporations, says that the extensive litigation now being carried on in Montana over copper properties adds over 2 cents a pound to the cost of production of the entire output of Butte Camp, which is about 240,000,000 pounds.

PERSONAL.

Henry S. Fleming, who has been secretary of the Anthracite Coal Operators' Association, has been appointed secretary of the International Salt Company.

Joseph Flather of Flather & Co., Nashua, N. H., sailed for Europe from Boston April 29, to be abroad about two months.

Philetus W. Gates, president of the Gates Iron Works of Chicago, was elected a director of the Allis-Chalmers Company in place of William L. Elkins, Jr., deceased, at a meeting of the Board of Directors in New York last week.

Edwin S. Cramp and John P. Drexel of Philadelphia have been elected directors of the American Diesel Engine Company, control of whom has been acquired by the International Power Company.

Maurice Graham of the British engineering firm of Graham, Morton & Co., Limited, Leeds, is paying a short visit to this country.

A. C. Trumbull has been elected a director of the Marinette Iron Works Company of Marinette, Wis., in the place of R. H. Trumbull, resigned.

T. C. Jones, who has been superintendent of the Alleghany Iron Company of Iron Gate, Va., for nearly 12 years, has removed to Richmond, Va., to manage the business of F. C. Dininny, Jr., who was president of the company.

Mrs. C. E. Merritt has been elected president of the David Maydole Hammer Company of Utica, N. Y., in succession to the late Cyrus B. Martin.

Thomas McDonald, superintendent of the Ohio Works of the National Steel Company, at Youngstown, Ohio, has returned from an extended trip to California.

James H. Cook, inventor of the Cook gasoline engine and vice-president and general manager of the Cook Mfg. Company, Albion, Mich., has sold to the company his patent rights and entire interest in the business.

C. Dellwik of the Dellwik-Fleischer Water Gas Syndicate of Westminster, London, has sailed for home after a considerable stay in this country.

H. M. Goodrich, formerly chief chemist for the Deering Harvester Company, has severed his connection with that company to enter the employ of the Piano Mfg. Company of Chicago.

Henry C. Frick of Pittsburgh is again purchasing large blocks of real estate in that city. Mr. Frick recently bought a piece of land on Diamond street, near the Frick Building, for which he paid $264,000.

The officers and the sailors of the Russian man-of-war "Retzivan" have presented to Charles H. Cramp, president of the W. Cramp & Sons Ship & Engine Building Company of Philadelphia, the builders of the vessel, a handsome silver Russian enamel punch set of nine pieces.

At a meeting of the Board of Directors of the Pocahontas Coal & Coke Company M. J. Caples was elected treasurer and superintendent, to succeed G. L. Estabrook, resigned.

Charles Ranlet, manager of the Washburn & Moen department of the American Steel & Wire Company, and J. O. Emanuel Trotz, superintendent of the South Works, have resigned and will go into business together. Mr. Ranlet was manager of the Holyoke Machine Work, at Worcester, previous to entering the employ of the Washburn & Moen Mfg. Company, and when that company sold out to the American Steel & Wire Company Mr. Ranlet was made the manager of the new department. Mr. Trotz has a wide reputation as a metallurgist. Harry G. Stoddard, assistant manager of the Washburn & Moen department and assistant general sales agent of the American Steel & Wire Company, has been promoted to manager. George A. Cragin of the Chicago office will be assistant general sales agent in charge of the Washburn & Moen specialties, and E. J. Watson, superintendent of the North Works, has been made assistant manager. Clinton S. Marshall has been promoted from assistant to superintendent of the South Works and his old office has been filled by the promotion of Thomas Horne, head of the steel department of the works. J. D. Crosby has been made superintendent of the North Works to succeed Mr. Watson. Mr. Trotz and Mr. Ranlet are not ready to make announcement what their business is to be.

W. C. Dickey leaves the New York office of the Cambria Steel Company on May 1 to assume the duties as secretary of the Maryland Sheet & Steel Company and of the Maryland Rail Company of Cumberland, Md. He will be the Eastern sales agent, with headquarters at 1133 Broadway, of both companies, the former producing blue annealed open hearth sheets from Nos. 7 to 20 gauge, harrow disk and circles, while the latter company make light rails from 12 to 30 pounds per yard.

Thomas Parrock, general superintendent of the mills of the Republic Iron & Steel Company, at Youngstown, Ohio, has made the following appointments and changes in his staff: George Summers of the Brown-Bonnell plant, promoted to superintendent of the Valley mill plant, vice George Lowe, resigned, who will take charge of the mills at Muskegon; Harry Parrock appointed superintendent of the Brown-Bonnell plant. The latter has been in charge of the mills here now operated by the American Steel Hoop Company for 11 years. His successor has not been announced. George Puggins, who has been connected with the Brown-Bonnell plant for ten years, has been appointed assistant superintendent.

MANUFACTURING.

Iron and Steel.

The Continental Iron Company, at Wheatland, Pa., are adding some new heating furnaces to their plant and have other improvements under contemplation which will be decided upon in the near future. It is intended to make this a modern plant in every respect.

The report that two more sheet mills will be built at the Falcon Works of the American Sheet Steel Company, at Niles, Ohio, is untrue. No additions are contemplated at this plant for the present.

The Jackson Iron & Tin Plate Company, Clarksburg, W. Va., intend to issue bonds in a large amount to provide for extensive additions which they propose to make to their plant. However, it is not the intention to market these bonds for some time to come.

It is probable that within a short time the ground now occupied by the Sligo Rolling Mills of Phillips, Nimick & Co. on the South Side, Pittsburgh, will be sold to the Panhandle Railroad. It is likely Phillips, Nimick & Co. will build another plant in the Pittsburgh district and negotiations are now on between the firm and parties who have offered sites.

The Inland Steel Company, Chicago, have increased their capital stock from $1,500,000 to $2,000,000. The company are building a large steel plant at Indian Harbor, Ind., which is expected to be in operation within a few weeks.

The Detroit Iron & Steel Company, who are to build a blast furnace on Zug Island, below Detroit, have made application for a charter with a capital of $1,500,000, of which $1,200,000 is said to have been paid in. The following are the stockholders: Daniel R. Hanna of Cleveland, Frank B. Richards of Cleveland and C. B. Warren of Detroit, 500 shares each; Frederick R. Hazard of Solvay, N. Y., 12,250; Charles W. Baird of Detroit, 75,000; Andrew H. Green, Detroit, 28,125; Frank West, Detroit, 28,125; Theo. H. Eaton and A. M. Parker, Detroit, 2500 each.

Furnace A of the Carnegie Steel Company, at Bessemer, Pa., which has been running on ferro heretofore, was put on Bessemer iron last week. It is said the Carnegie Steel Company have bought a large amount of ferromanganese abroad to supply their own needs.

The strike at the Youngstown Works of the American Bridge Company, at Youngstown, Ohio, has been ended and the men have returned to work on the terms of the company.

The Sharon Steel Company, Sharon, Pa., have commenced active work on the building of two more blast furnaces, each to have a daily capacity of about 350 tons. These two new stacks, with the one now in operation, will give this concern an output of over 1000 tons of pig iron per day. All this metal will be used for their open hearth plant, which is being enlarged by the addition of four more 50-ton furnaces.

The Railway Steel Casting Company, recently organized at Pittsburgh, will likely locate their new plant at Tarentum, Pa., about 15 miles from that city. Five or six buildings will be erected, the main one being 340 feet long and 140 feet wide. The company will manufacture all kinds of finished iron and steel forgings, making about 1000 tons a month. C. C. Smith, president of the Union Steel Casting Company, at Pittsburgh; Samuel Harden Church, assistant secretary of the Pennsylvania lines West; Justice W. P. Potter and George W. Eisenbeis are actively connected with the new concern.

The Eastern Tube Company of Pittsburgh, whose plant is located at Zanesville, Ohio, recently took a contract for 35 miles of 10-inch line pipe for the Central Ohio Natural Gas & Fuel Company of Columbus, Ohio.

The Copake Iron Company have been incorporated to operate the Copake Iron Works, at Copake, Columbia County, N. Y., consisting of one stack, and will succeed the late Frederick Miles in the manufacture of charcoal pig iron. The furnace will be blown in about May 15.

The Franklin Rolling Mill & Foundry Company, Franklin, Pa., are being organized, with a capital of $750,000, for the manufacture of steel tripartite poles for telephone, telegraph, electric railway and light wires. The new company will absorb the Electric Tripartite Steel Pole Company, 253 Broadway, New York City, of whom Charles W. Mackey is president; G. V. A. Conger, vice-president and manager, and M. E. Miller, secretary and treasurer.

The Boyertown Ore Company, recently incorporated with a capital stock of $300,000, have purchased the entire group of ore producing mines at Boyertown, Pa., formerly owned by Gabel, Jones & Gabel, the Phœnix Iron Company, the Lewis Estate and the Warwick and Binder property, covering in all 256 acres of ore lands, with all the buildings, machinery and dwellings. Operations will be commenced at once. The officers and directors are William S. Harvey, 119 South Fourth street, Philadelphia, president; John Birkbine, vice-president; George W. Lex, secretary; W. P. Wilson, treasurer; David Reeves, president of the Phœnix Iron Company, and Archer Brown of Rogers, Brown & Co. William G. Rowe of Reading will also be connected and identified with the company.

The Driver-Harris Wire Company, Newark, N. J., announce that they have moved across the river to Harrison and into their new building on Railroad avenue, where they have greatly increased facilities for the production of their various lines of wire and the handling of increasing business.

The Eleanor Iron Company of Harrisburg, Pa., whose lease of the Hollidaysburg & Gap Iron Works at Hollidaysburg expired early in the month, at which time the plant was closed, have purchased the works and will resume operations immediately. The facilities for the manufacture of merchant bar iron and skelp will be greatly increased by the substitution of modern furnaces for the old ones and the installation of a new boiler plant to utilize the waste gases from the furnaces. R. C. Neal is president and H. L. Sholly secretary and treasurer.

Durham Furnace, at Riegelsville, Pa., recently purchased by the Durham Iron Company, was put in blast on the 17th ult., the blow in being considered the most successful ever recorded at that stack. It was burdened to go in on high silicon foundry iron. The first cast ran 4.66 per cent. and those following gradually decreased in silicon as the burden was increased until the desired amount, 2.25 to 2.75 per cent., was obtained, graining up No. 1 and No. 2 X, on which it is now running. The repair work on the furnace, filling and blowing in were done under the direction of Jerome Keeley, Jr., superintendent, formerly with the Poughkeepsie Iron Company.

The Ashland Iron & Steel Company, Ashland, Wis., have added a chemical plant to their property for the purpose of securing the by-products arising from the carbonization of their wood, and the new plant has just been successfully started. It is one of the most complete of its kind in the country. Electricity has been largely used as a motive power. The stockholders of this company are also the stockholders in the West Colby Iron Mining Company, at Bessemer, Mich. This company have been incorporated with the Ashland Iron & Steel Company, and will be known as the Yale Mine. A large body of high grade Bessemer ore has been developed. To cover the above improvements and additions the capital of the company has been increased to $1,250,000. The officers are as follows: Joseph H. Berry, president, Detroit, Mich.; Wm. G. Smith, secretary and treasurer, Detroit, Mich.; W. H. Hinkle, acting vice-president, Ashland, Wis.; E. J. Burrell, superintendent chemical plant; L. E. Dunham, manager furnace department.

Rapid progress is being made on the new plant of the Norwalk Steel & Iron Company, at Norwalk, Ohio. The foundations have been laid, structural material is being received, and the boilers are ready for delivery. The company will build a large water works system. General Manager Erikson was in Cleveland last week arranging for the purchase of considerable machinery equipment.

The plant of the Tyler Tube & Pipe Company, at Washington, Pa., manufacturers of charcoal iron boiler tubes, is to be very much enlarged, and considerable new equipment will be installed.

The Bostwick Steel Lath Company have purchased a site of several acres near Niles, Ohio, where their new plant will be located.

The plant of the Carnegie Tube Company, at Carnegie, Pa., near Pittsburgh, manufacturers of wrought iron pipe, has been in operation continuously on double turn since last January. The concern have just finished a new skelp mill, which they expect to start this week.

The Cambridge Rolling Mill Company of Cambridge, Ohio, have again resumed operations after being compelled to close down some time for repairs. This concern manufacture light structural steel work in Bessemer steel, such as flats, rounds, angles, &c. The company have recently issued an attractive catalogue, which will be mailed to any address upon application.

General Machinery.

The Pratt & Cady Company, Hartford, Conn., manufacturers of steam governors, are enlarging their plant by the erection of a brick machine shop, 48 x 96 feet, of mill construction, and increasing their facilities by the addition of new machinery.

A complete dust collecting system and a hot air heating system are required by the Gallipolis Furniture Company, Gallipolis, Ohio, for their new factory, the construction of which is now well under way. There will be two buildings, 45 x 140 feet each, four stories, and a one-story power house, 26 x 70 feet. The equipment was furnished by the following: Atlas Engine Works, Indianapolis, Ind., boilers and engines of about 230 horse-power; Triumph Electric Company, Cincinnati, Ohio, 250-light dynamo; J. A. Fay & Egan Company, Cincinnati, Ohio, wood working machinery; Bradford Belting Company, Cincinnati, Ohio, belting; Gallipolis Foundry & Machine Company, Gallipolis, Ohio, iron work; Boston Blower Company, Boston, Mass., dry house; American Pulley Company, Philadelphia, Pa., shafting and pulleys; Parkhurst Company, Indianapolis, Ind., elevators. They expect to have the plant ready for operation in June.

The Cortland Corundum Wheel Company, Cortland, N. Y., recently organized for the purpose of manufacturing corundum and emery wheels by the silicate, vitrified and elastic processes, have secured the buildings at 107 and 109 Railroad avenue, which they will enlarge by the erection of a substantial addi-

tion. Three large kilns of most improved design will be erected and the latest machinery for corundum wheel making installed. The company are in the market for a number of lathes of all sizes.

The recently incorporated Lynchburg Water Power Company, Lynchburg, Va., will start at once upon the erection of a plant at Rensens to cost about $200,000. They will develop about 4000 horse-power.

The Brattleboro Gas & Electric Light Company, Brattleboro, Vt., will build a dam and electric power station at West Dummerston to develop about 1000 horse-power. Contracts will be let this week. C. F. Thompson is secretary and treasurer.

The Pittsburgh Gage & Supply Company, Pittsburgh, Pa., report an excellent demand for their White Star filter, a recent shipment of four being made to the Yarbic mines, Japan. The company have recently booked the following orders for their continuous oiling systems, using the duplex types of the White Star filters: One of 6000 gallons filtering capacity per day for the Union Steel Company of Pittsburgh and one for the Citizens' Railway, Light & Power Company, Mansfield, Ohio, supplying a Cooper tandem compound, a Bates cross compound and an Allis simple type engine with a continuous flow of clean oil by mechanical means upon all bearings.

Webster & Perks Tool Company, Cincinnati, Ohio, report an unusual demand for their automatic bolt threading machinery, also their grinding and polishing machines. They expect shortly to place a new molding machine on the market and have orders ahead to keep them busy for some time.

Owen Machine Tool Company, Springfield, Ohio, who were among the sufferers by the recent fire which swept away the old East street shops, have secured a temporary location in the Whitely Mfg. Company shops. They have filled up the second floor with all new machinery and advise us that they will be ready to fill orders for milling machines inside of four weeks at the latest.

The Minster Machine Company, Minster, Ohio, are making extended improvements to their plant. A spacious building is being erected to be used for a foundry which will be equipped with pulley molding machines and other modern machinery. Pulley finishing machines are also being added and the entire plant is expected to be in full operation in a few weeks. In the future the company will devote their entire attention to the manufacture of friction clutches and plain pulleys.

The Walker Tool Company and the F. J. Hennecke Machine Works, Milwaukee, Wis., have consolidated as the Hennecke-Walker Company. The new company will continue the manufacture of lines heretofore made by the separate concerns, to which will be added some new tools. The product will be elevating and conveying machinery, punches, shears and dies for blacksmiths and sheet metal workers, and the Walker patent caliper attachment, test joint and lathe center grinder.

The Erie Pump Company of Erie, Pa., recently shipped a carload of pumps to the Philippine Islands and another carload to Yucatan.

The American Brass Novelty Company, Grand Haven, Mich., advise us that they will be in the market for boiler and engine of about 150 horse-power, heating system, power presses, lathes, &c., for the $10,000 plant they are to erect at that place.

The Aurora Foundry & Machine Works, Aurora, Mo., manufacturers of complete concentrating and pumping plants, are in the market for a 50 inch by 20 foot lathe, power punch, 4-inch Armstrong boring dies, an 800 to 1000 pounds steam hammer, boiler rolls and shears and a traveling crane for their new plant. They have purchased the foundry and machine works at Iola, Kan., the buildings of which are now in course of erection, consisting of a foundry, 50 x 60 feet; machine shop, 50 x 60 feet, two stories; blacksmith shop, sheet iron and boiler department, 50 x 100 feet. The new plant will be run as a branch of the Aurora works.

The railway, mill and supply business of C. W. Deming, Brunswick, Ga., will be succeeded May 1 by the Brunswick Railway, Mill & Farm Supply Company, recently incorporated with a nominal capital of $1000. C. W. Deming will be general manager.

The American Bolt & Machine Company, with offices at Ottawa, Ohio, have been incorporated under the laws of West Virginia with $200,000 capital stock. A. H. Poe of Ottawa is at the head of the company.

The National Cash Register Company of Dayton, Ohio, are preparing to erect an addition and have placed a contract for structural work with the Forest City Steel & Iron Company of Cleveland. It will be 360 x 65 feet and will be used as a machine shop.

The United Engineering & Foundry Company, at Pittsburgh, have bought the chilled rolled foundry formerly operated by the Apollo Iron & Steel Company at Apollo, Pa. The output of the plant was rolls exclusively. The acquisition of this plant gives the United Engineering & Foundry Company five plants, four of which are in the Pittsburgh district, these being McGill & Co., Lincoln Foundry Company, Frank-Kneeland Machinery Company and the Apollo Foundry Company at Apollo. The concern also own the Lloyd-Booth Works at Youngstown, Ohio. The United Engineering & Foundry Company are now much the largest concern in the United States manufacturing rolls and heavy rolling mill machinery of all kinds. Isaac W. Frank is president of the concern and Edward Kneeland is treasurer.

Columbus papers report that for the present the John R. Morgan Engineering Company of that city have disbanded. The company were incorporated two months ago with $750,000 capital stock to produce cranes and special machinery. The big increase in the price of structural steel, and the inability of obtaining same and the new machinery required for many months, is given as the cause of the temporary abandonment of the project.

W. L. Bowler, father of George H. Bowler of Cleveland, has become associated with the latter in the second-hand machinery business. The firm name will continue as heretofore, but the business will be increased and new lines will be taken up.

The Havana Metal Wheel Company of Havana, Ill., well known in the manufacture of metal wheels and plowshares, &c., have found it necessary to add a new addition, 50 x 200, to present plant in order to provide for increasing demand for their products. The equipment is new machinery of latest and most improved design.

The Nichols Dryer Company, Cincinnati, Ohio, have incorporated, with a capital stock of $300,000, for the manufacture of lumber dryers, veneer dryers, hydraulic presses, glue spreaders, accumulators, &c., used in drying and other treatment of lumber and veneer. The lumber and veneer dryers are patented articles and are mainly constructed of iron pipe and castings. The company will equip a new plant at Norwood, a suburb of Cincinnati. The officers are A. S. Nichols, president; H. C. Yeiser, president of the Globe-Wernicke Company, vice-president; J. E. Blain, secretary and treasurer of the Globe-Wernicke Company, secretary and treasurer.

The Mayo Knitting Machine & Needle Company are adding to their works at Franklin Falls, N. H., two large wings, which will double their present capacity and enable them to meet the demands of their growing business.

The Bailey-Lebby Company, Charleston, S. C., have recently opened a store in Columbia, S. C., under the title of the Columbia Supply Company. They intend doing a general mill supply and machinery business. The officers of the company are: President, G. A. Ginguard, and secretary and treasurer, Chris. Atkinson. The directors are G. A. Ginguard, R. B. Lebby, Wm. S. Stevens and Chris. Atkinson.

A very elaborate exhibit of machinery and mill supplies is made at the Charleston Exposition by the Bailey-Lebby Company of Charleston. It contains upward of 70 different lines, embracing stationary and gas engines, boilers, pumps, rice threshers, cotton gins and general supplies.

Engines and Boilers.

In the courts at Pittsburgh a petition in bankruptcy has been filed against the Standard Automatic Gas Engine Company of Oil City by Henry Ulrich of Allegheny, who alleged that the company, while insolvent, permitted A. F. Smithman to obtain preferences through legal proceedings. The property of the company was placed in the hands of a receiver a short time ago and sold to Smithman.

The Committee on Water of Allegheny Councils of Allegheny, Pa., have recommended favorable ordinances authorizing the Recorder of that city to advertise for two 350 horse-power water tube boilers for the Montrose pumping station, two 250 horse-power water tube boilers for the Howard street pumping station, two 15,000,000-gallon pumping engines for the Montrose pumping station and one 5,000,000-gallon pumping engine for the Howard street pumping station.

The Exeter Machine Works, Exeter, N. H., have been awarded the contract for erecting a brick fire proof electric light plant, fully equipped with boilers, engines and electrical machinery, for the Woodstock Electric Light Company, Woodstock, Vt. The plans were made by W. B. Burlingame and he will have general supervision of erecting and installing the boilers, engines and machinery. The Exeter induced draft system, with an Exeter smoke exhauster and direct connected engine, will be used.

The Rochester Gas & Electric Company, Rochester, N. Y., purpose to build an electric light plant to cost about $30,000, entire equipment for which has been contracted for. They have purchased the Citizens' Light & Power Company and the Municipal Gas Company of that city and will consolidate the three concerns.

Boiler and engine of 75 horse-power capacity and machinery for 75-light plant will be required by Dalton, Ga., which city has voted to issue $10,000 in bonds for the erection of the plant. Address Julian McCamy, Mayor.

The Chicago Injector Company, Wadsworth, Ohio, have been incorporated with a capital stock of $25,000.

The Kelley Springfield Road Roller Company, Springfield, Ohio, recently incorporated for the manufacture of road rollers, engines and boilers, have purchased the old rolling mill building, 121 x 287 feet, and the steel plant, a brick structure 80 x 360 feet, of the East street shops, for about $35,000, which they will

immediately prepare for occupancy. The new company will take over the business of the O. S. Kelley Company and remove their equipment to the new quarters.

The Straight Line Engine Company, Syracuse, N. Y., will build an addition, 24 x 32 feet, to their plant, to be used as a blacksmith shop. The present blacksmith shop will be transformed into a boiler room, which will be equipped with a new 150 horse-power boiler. This will double the power capacity of the plant.

The Kenton Gas & Electric Company, Kenton, Ohio, are installing a new engine in their power house and are figuring on increasing their boiler capacity.

The Richard Boiler & Engine Company of Toledo have secured a contract from Pickands, Mather & Co., Cleveland, for 3000 horse-power of boilers, to be installed in the plant of the Toledo Furnace Company now building at Toledo.

The American Brass Novelty Company, Grand Haven, Mich., will require a 150 horse-power engine and boiler and heating system. See "General Machinery."

The Schaife water purifying system, manufactured and installed by Wm. B. Schaife & Sons' Company, Pittsburgh, Pa., is claimed to be the most scientific and thoroughly correct method of treating boiler feed water on the market, as well as the cheapest in way of maintenance and operation. The plants are furnished for any horse-power. Among recent contracts taken are American Sheet Steel Company, at New Philadelphia, Ohio, 1500 horse-power; R. A. Simonds & Son, Dayton, Ohio, 200 horse-power; Harrisburg Rolling Mill Company, Harrisburg, Pa., 1500 horse-power; Antrim Iron Company, Mancelona, Mich., 1500 horse-power; National Mining Company, Pittsburgh, Pa., 1000 horse-power; Isaac Harter Company, Fostoria, Ohio, 1000 horse-power.

Foundries.

The Sharon Foundry Company, who are building a foundry at Sharon, Pa., have purchased from the Shaw Electric Crane Company, Muskegon, Mich., three 20-ton cranes, each with 5-ton auxiliary hoists, and one 5-ton crane. The officers of the Sharon Foundry Company are John Riddell, president, and Thomas Kennedy, secretary and treasurer.

The Deoxidized Bronze & Metal Company, Bridgeport, Conn., large manufacturers of brass castings, whose foundry covers 30,000 square feet, will add an addition of about 80 x 60 feet.

The recently organized General Foundry Company, Gardner, Mass., are in the market for a blower and an emery grinder for their foundry, 40 x 80 feet, which they are erecting for the manufacture of gray iron and brass castings. A 32-inch cupola, tumbling barrel and core oven have been purchased from the Whiting Foundry Equipment Company of Harvey, Ill. The power will be electric and all machines will be direct connected to motors of 500 volts, direct current.

The American Foundry & Construction Company, recently organized at Pittsburgh, will build a plant at Hazlewood, a suburb of that city. The main building will be 160 x 80 feet.

The Deming Company of Salem, Ohio, have completed their new foundry addition and are installing considerable new machinery in their machine shop.

The McConway & Torley Company of Pittsburgh, manufacturers of malleable and steel castings and sole manufacturers of the Janney coupler, have recently added a basic open hearth steel furnace to their plant, which is now in operation.

The Framingham Industrial Association have let the contract for the erection of a new foundry building, 78 x 120 feet, at South Framingham, Mass., to be completed in six weeks. The plant will be conducted by William Fenton, Jr., 800 Main street, Worcester, Mass., who will manufacture iron and brass castings. No equipment has as yet been purchased.

Harry G. Hart, proprietor of Hart's Iron Foundry, Salem, N. J., has completed arrangements to enlarge his plant and has associated with him J. W. Van Meter, a manufacturer of brass trimmings. The firm have incorporated with a capital stock of $100,000.

The recently incorporated Alexandria Iron Works, Alexandria, Va., have taken over the foundry business of Curtin & Butts and will considerably increase the plant. The officers are J. R. N. Curtin, president; Calvin Butts, vice-president, and C. D. Nourse, secretary and treasurer.

Bridges and Buildings.

The Modern Steel Structural Company, Waukesha, Wis., are building a substantial addition to their plant.

The National Bridge Company, Indianapolis, Ind., have incorporated with a capital stock of $20,000 for the construction of concrete steel bridges, consisting of concrete reinforced with steel rods. Daniel B. Luten is president.

At a recent meeting of the Board of Directors of the West Virginia Bridge & Construction Company of Wheeling, W. Va., Senator S. B. Elkins was elected a director of the company. Charles F. Paxton of Wheeling will be closely identified with the active management of this new concern. Contracts are being placed for the buildings and equipments of the bridge plant to be erected by this concern, and active work will be started in a short time.

Fires.

The plant of the Champion Iron Fence Company, Kenton, Ohio, was destroyed by fire April 23. The loss is estimated at $225,000.

The Sun Match Company's plant in Falls of Schuylkill, a suburb of Philadelphia, Pa., was destroyed by fire April 23, entailing a loss of about $100,000.

The municipal electric lighting and water works plant of the village of Madisonville, Ohio, was badly damaged by fire a few days ago. New machinery just delivered was damaged to considerable extent.

The Phœnix Horseshoe Company, Joliet, Ill., suffered a $10,000 loss by fire at their plant last week.

The Globe Window Glass Company's plant at Findlay, Ohio, was destroyed by fire April 26. Loss is about $100,000.

The Crowell Crutch & Pulley Foundry, Westfield, N. Y., was destroyed by fire April 26. Loss is estimated at $20,000.

J. T. Carmody's foundry in Cedar Rapids, Iowa, was destroyed by fire April 23, entailing a loss of about $25,000.

The Shenandoah Powder Works, Shenandoah, Pa., were wrecked by an explosion April 25, causing a loss of $12,000.

The plant of the Hager Steel & Iron Company, at Madison, Ill., was destroyed by fire April 29. The loss is estimated at $250,000, with insurance of $100,000. The plant was a new one and had only been in operation a few weeks.

Hardware.

W. C. Ladd, Bristol, Conn., manufacturer of small nuts for hardware specialties, is occupying a new factory on Parallel street. The new building is of wood, one story high and 28 x 60 feet.

The Susquehanna Casting Company, Wrightsville, Pa., manufacturers of builders' hardware and iron castings, are building an addition to their foundry and making other improvements that will double the present capacity. They advise us that their business has increased to such an extent that they were obliged to make the improvements two months earlier than contemplated. The plant, though erected only two years ago, is already four times its original size.

The Southern Metal Company, Orangeburg, S. C., who commenced business and were incorporated on February 15, are now manufacturing tin goods and a general line of sheet work. They are having dies of four sizes made by the E. W. Bliss Company, Brooklyn, N. Y., for the manufacture of seeder cups which accompany the Hoffman Universal seeder, of which they are the sole manufacturers. They are equipped to manufacture cornices, skylights and a patent eaves trough hanger, the invention of their manager, J. B. Outland, and are preparing to manufacture steel ceilings. Among the company's contracts is one for 3000 Hoffman Universal seeders.

The Housatonic Company of Wallingford, Conn., and the Eagle Spoon Company of North Haven, Conn., have consolidated under the corporate style of the Housatonic Mfg. Company. The plants at Wallingford and North Haven will be operated, pending the erection of a new plant in New Haven. The new company have established a temporary office at 278 Peck street, New Haven, where all correspondence should be addressed.

Miscellaneous.

The General Lighting Appliance Company and the Phœnix Gas & Electric Mfg. Company, St. Louis, Mo., have consolidated as the St. Louis Brass Mfg. Company, and will shortly incorporate with a capital stock of $50,000. The company are having plans prepared for a new plant for the manufacture of gas, electric and combination fixtures, brass and bronze castings, &c.

The Illinois Iron & Bolt Company, Carpentersville, Ill., have taken out a new charter, the old one having expired by limitation.

H. A. Clark, secretary and general manager Tuscarora Valley Railroad Company, Corning, N. Y., advises us that contracts for construction of their line from Addison to Woodhull and Jasper will soon be let. The line will be 18 miles long and will be operated by electricity. Plans for the power house are not yet completed and no contracts for equipment have been let. The Penn Yan & Lake Keuka Electric Railroad, to extend between these points, a distance of 12 miles, is in the control of the company, who are now ready for contracts.

The Howard Elastic Wheel Company, Wabash, Ind., manufacturers of steel buggy wheels and hand sleds, have increased their capital stock to $150,000 and have purchased a stone building, 40 x 100 feet, two stories, on the Cleveland, Cincinnati, Chicago & St. Louis Railway, which they will considerably enlarge. They expect to have the plant in operation by the middle of May.

The Walton Company, Walton, N. Y., have incorporated, with a capital stock of $100,000, for the manufacture of rubber tired vehicles. Address George O. Mead.

The Pittsburgh Visible Typewriter Company of Pittsburgh have received an order for 27,000 typewriters for shipment to Germany.

The McAuley Automatic Trap Company of Pittsburgh have been granted a charter with a capital of $5000.

The Iron City Spring Company of Pittsburgh have applied for a charter. The concern will erect a plant in the Pittsburgh district.

The Iron and Metal Trades.

The Pig Iron market has been quiet during the past week, simply because there is nothing offering, business being confined to covering urgent necessities. Buyers, apparently, have made up their minds to await developments on the question of supplies for distant deliveries and rely upon the assurances made that the production will be ample. So far as the next 60 days are concerned, there is little chance of any change in the prevailing scarcity.

The threatened troubles with blast furnace labor in the Central West over a proposed change to three eight-hour shifts seems averted for the present, but the issue may come up on June 1. So far as the transportation of Ore and Fuel is concerned all troubles are now pretty well over.

The famine in Steel continues and high prices are being occasionally paid for moderate lots. Some business has been done in Sheet Bars for the Pittsburgh district. From Chicago comes the report of negotiations for round lots of foreign Steel coupled with advices that the foreign Steel works show a disposition to meet the views of buyers here by naming lower prices. The figures quoted are certainly under any which have recently reached this side.

Consumers of Structural Material have been finally forced to turn to the foreign markets for a supply. During the week a Chicago firm have closed for 3000 tons of foreign Beams and a New York architectural shop has placed an order for 4000 tons. While the nominal association price on Beams and Angles would not permit of importations, the actual prices at which Structural Material is selling for prompt delivery do leave a profit in spite of difficulties as to sections, &c.

Consumption in all branches of Finished Iron and Steel continues exceedingly heavy, and there is no evidence that the present range of values is curtailing it. In the West there have been round sales of Cast Iron Pipe, and several large contracts for Steel Pipe lines have also been placed. The Bar mills have been taking additional orders and the Plate mills are crowded with work.

As indicating the situation in the Steel Rail trade, we may note that one mill was forced to decline an order for 10,000 tons on which delivery was to begin as late as December. Of course the fact that the Scranton mill is being moved to Buffalo has left a serious gap in the production.

Some round sales of Steel Rails have been made by German mills in the Canadian market, which we cannot supply. A report is current of a sale of a 2500-ton lot of foreign Rails for this country.

Some large transactions have taken place in Old Steel Rails in the West, and more are pending. Importations, it appears, cannot be put through because buyers and sellers are too far apart.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

	Apr. 30, 1902.	Apr. 23, 1902.	Apr. 2, 1902.	May 1, 1901.
PIG IRON:				
Foundry Pig No. 2, Standard Philadelphia	**$19.75**	$19.75	$18.75	$15.25
Foundry Pig No. 2, Southern, Cincinnati	**17.75**	....	15.00	14.00
Foundry Pig No. 2, Local, Chicago	**19.50**	19.00	18.50	15.50
Bessemer Pig, Pittsburgh	**20.00**	19.75	17.75	16.75
Gray Forge, Pittsburgh	**19.75**	19.00	18.25	14.50
Lake Superior Charcoal, Chicago	**22.50**	21.50	21.50	18.00
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	**32.00**	31.00	31.00	24.00
Steel Billets, Philadelphia	33.00	33.00	32.50	26.25
Steel Billets, Chicago	....	....	....	26.00
Wire Rods, Pittsburgh	**36.50**	36.50	36.00	38.00
Steel Rails, Heavy, Eastern Mill (nominal)	28.00	28.00	28.00	28.00
Spikes, Tidewater	2.00	2.00	2.00	1.60
Splice Bars, Tidewater	1.60	1.60	1.60	1.40
OLD MATERIAL:				
O. Steel Rails, Chicago	17.50	17.50	17.50	14.50
O. Steel Rails, Philadelphia	21.00	....	....	16.75
O. Iron Rails, Chicago	24.00	24.00	24.00	20.00
O. Iron Rails, Philadelphia	**26.00**	26.00	25.00	19.50
O. Car Wheels, Chicago	19.00	19.00	19.00	16.50
O. Car Wheels, Philadelphia	**19.50**	17.75	17.50	17.50
Heavy Steel Scrap, Chicago	16.50	16.50	16.50	14.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.92	1.92	1.92	1.50
Common Iron Bars, Chicago	1.90	1.90	1.85	1.60
Common Iron Bars, Youngstown	....	....	....	1.50
Steel Bars, Tidewater	1.80	1.80	1.80	1.62½
Steel Bars, Pittsburgh	1.60	1.60	1.60	1.40
Tank Plates, Tidewater	**1.95**	1.85	1.78	1.70
Tank Plates, Pittsburgh (nom.)	1.60	1.60	1.60	1.50
Beams, Tidewater	**1.95**	1.95	1.85	1.75
Beams, Pittsburgh (nom.)	1.70	1.70	1.70	1.60
Angles, Tidewater	**1.85**	1.85	1.75	1.75
Angles, Pittsburgh (nom.)	1.60	1.60	1.60	1.60
Skelp, Grooved Iron, Pittsburgh	**2.10**	2.10	1.95	1.75
Skelp, Sheared Iron, Pittsburgh	**2.15**	2.20	2.00	1.85
Sheets, No. 27, Pittsburgh	3.00	3.00	3.00	3.20
Barb Wire, f.o.b. Pittsburgh	2.90	2.90	2.90	2.90
Wire Nails, f.o.b. Pittsburgh	2.05	2.05	2.05	2.30
Cut Nails, Mill	2.05	2.05	1.95	2.00
METALS:				
Copper, New York	*11.75*	11.75	12.00	17.00
Spelter, St. Louis	4.15	4.15	4.20	3.82½
Lead, New York	4.10	4.10	4.10	4.37½
Lead, St. Louis	4.00	4.00	4.02½	4.20
Tin, New York	**28.25**	27.25	26.40	25.87
Antimony, Hallet, New York	8.00	8.00	8.00	8.75
Nickel, New York	50.00	50.00	50.00	55.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	4.19	4.19	4.19	4.19

Chicago.

FISHER BUILDING, April 30, 1902.

The salient features of the market during the week have been the movement in foreign Steel, large sales of domestic Bars and the increased demand for Rails. Three thousand tons of foreign Beams have been sold for July delivery, and negotiations are pending on 15,000 tons of Billets to be delivered at Chicago and Pittsburgh. Foreign holders have shown a dispoition to meet the views of purchasers in this country, which will permit Billets to be laid down equivalent to $31.50, Chicago, and $29.75, Baltimore. It is expected that the sales now pending in whole or part at last will be consummated within the next few days. Two large contracts for Steel Bars have been made during the week for both Eastern and Western shipment, with deliveries running into the first half of 1903. Some large purchasers of New Rails are in the market, and 2000 tons of Old Rails for relaying have been sold at $32, Chicago, with other offerings aggregating about 10,000 tons at the same price, and the prospect of some business of moment in the very near future. A further advance of 50c. per ton has been asked and obtained for local Iron, and a few special makes of Southern Iron have also ruled higher. The jobbing trade has continued very heavy with full prices realized.

Pig Iron.—The volume of business in Pig Iron has been relatively small, but there has continued to be an

active if not an urgent demand for carloads, and in some instances for 100-ton lots for immediate or nearby delivery. Large purchasers have continued to test the market for round lots for the last half of the year, but there seems to be less disposition to close than was noted a week ago. Possibly the report that 15 stacks are building, the product from which will relieve the present aggravating scarcity, may have relieved prospective consumers from anxiety, but the fact remains that but a small quantity of this product will reach the market within the next 10 or 12 months. Sellers of local Foundry Iron have demanded and obtained a further advance of 50c. per ton, while Lake Superior Charcoal and Ohio Strong Softeners have been sold at $1 a ton above previously current prices. Malleable Bessemer and Jackson County and Kentucky Silvery have also commanded $1 per ton premium on quotations made a week ago. Southern Coke Iron has continued strong, the advance of a week ago having been fully maintained, the inside prices being current for quick shipment and the outside prices for delivery running into the last half of the year. It is almost superfluous to add that there has been no change in official prices of the Southern furnaces, which are based upon $12, Birmingham, for No. 2 Foundry. We quote as follows:

Lake Superior Charcoal	$22.50 to $23.25
Local Coke Foundry, No. 1	20.00 to 20.50
Local Coke Foundry, No. 2	19.50 to 20.00
Local Coke Foundry, No. 3	19.00 to 19.50
Local Scotch, No. 1	19.50 to 20.00
Ohio Strong Softeners, No. 1	22.10 to 22.35
Southern Silvery, according to Silicon	19.90 to 20.40
Southern Coke, No. 1	19.40 to 19.90
Southern Coke, No. 2	18.65 to 19.15
Southern Coke, No. 3	18.15 to 18.65
Southern Coke, No. 1 Soft	19.40 to 19.90
Southern Coke, No. 2 Soft	18.65 to 19.15
Foundry Forge	17.65 to 18.15
Southern Gray Forge	17.65 to 18.15
Southern Mottled	17.65 to 18.15
Southern Charcoal Softeners, according to Silicon	18.65 to 19.15
Tennessee Silicon Pig	21.65 to 22.15
Alabama and Georgia Car Wheel	22.65 to 23.15
Malleable Bessemer	20.50 to 21.00
Standard Bessemer	.... to 20.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon	21.00 to 21.60

Bars.—An active and even urgent demand has continued for Bar Iron in moderate amounts, and one or two large contracts have been placed. Shipments are being made from the mills a little more readily, which is highly gratfying, but the overcrowded condition of the mills, of course, still continues. Actual cash transactions are taking place at 1.90c. to 1.95c., Chicago, for mill shipments. The price from store continues at 2.25c., full extras. Two or three large contracts for Steel Bars have been made during the week for shipment extending through the first half of 1903, the deliveries to be made both in the East and in this territory. Prices have continued from 1.75c. to 1.90c., mill shipment, for Soft Steel Bars, 2.15c. to 2.25c. for Hoops, base, and 2.25c. to 2.40c. for Angles, base. Jobbers have had but little respite from the active and urgent demand which was noted a week ago, the aggregate tonnage being heavy. Small Angles are selling at 2½c. Soft Steel Bars command 2c. to 2¼c., and Hoops 2½c., base, from store.

Structural Material.—All kinds of Structural Steel have continued to meet an active and even urgent demand, with much difficulty experienced in obtaining ample supplies for prompt delivery. A feature of prominence has been the sale of 3000 tons of foreign Beams for delivery extending into July of this year. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.75c. to 1.90c.; 18 inches and over, 1.85c. to 2c.; Angles, 1.75c. to 1.90c. rates; Tees, 1.80c. to 1.90c.; Universal Plates, 1.75c. to 1.85c. Small lots of Beams and Channels from local yards are quoted at 2.50c. to 3.50c.; Angles, 2.50c. to 3.50c. rates; Tees, 2.55c. to 3.50c. rates.

Plates.—The volume of business has continued large, made up of an aggregate of small sales of from 100 to 500 ton lots, for which full prices have been readily obtained. There is no relief in sight for the mills and no improvement in shipments. Official prices have remained unchanged, but little if any business is being done, except at outside quotations. Mill shipments are quoted as follows: Tank Plate, ¼-inch and heavier, 1.75c. to 1.90c.; Flange, 1.95c. to 2c., and Marine, 2.15c. to 2.25c., Chicago.

Sheets.—The demand for Sheets has continued active and even urgent, but as a rule only small sales have been made, because of the inability of mills to accept large orders for delivery within several months. Mill shipments of No. 27 Black Sheets are quoted at 3.15c. to 3.25c., Chicago, and small lots from store at 3.45c. to 3.55c. Galvanized Sheets are quoted at net prices, mill shipments being held on the basis of 4.35c. to 4.50c., Chicago, and small lots from store at 4.70c. to 4.75c. for No. 27.

Cast Pipe.—An active demand has been experienced from gas and water companies for Cast Iron Pipe, the demand being stimulated by the advance in prices which has taken place in conformity to higher prices prevailing for Pig Iron. The full amount of the Chicago contract referred to a week ago was 4000 tons; St. Louis, 3000 tons, and Los Angeles, 2000 tons. In addition there has been 1800 tons sold at Milwaukee, sizes ranging from 6 to 36 inches; 800 tons 6-inch Pipe to Seattle and 600 tons placed at Portland, Ore. Cast Iron Water Pipe is quoted by manufacturers as follows: 4-inch, $30; 6-inch, $29; 8-inch and larger, $29.50, and Gas Pipe, $1 per ton higher, Chicago.

Merchant Pipe.—There has continued to be a fair run of small orders, and a firm tone has characterized the market without essential change in prices. Carload lots are quoted as follows, random lengths: Black, ⅛ to ½ inch, 56½ off; ¾ to 12 inches, 63½ off; Galvanized, ⅛ to ½ inch, 43½ off; ¾ to 12 inches, 50½ off.

Boiler Tubes.—A stronger tone has prevailed, which has resulted in higher prices at both mill and store, which has stimulated the demand. Revised quotations are as follows:

	Steel.	Iron.
1 to 1¼ inches	35	35
1¾ to 2¼ inches	50	32½
2½ inches	50	35
2¾ to 3 inches	57½	42½
6 to 13 inches	52½	..

Merchant Steel.—Orders from implement manufacturers have continued liberal, and buggy manufacturers have continued to place contracts of importance. A strong tone has continued to prevail, with full prices readily obtainable. Mill shipments are quoted as follows: Smooth Finished Machinery Steel, 2c. to 2.10c.; Smooth Finished Tire, 1.95c. to 2.10c.; Open Hearth Spring Steel, 2.45c. to 2.55c.; Toe Calk, 2.25c. to 2.40c.; Sleigh Shoe, 1.85c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 50 off in carload lots. Ordinary grades of Crucible Tool Steel are quoted at 7c. for mill shipments; specials, 12c. upward.

Rails and Track Supplies.—Several large buyers of Heavy Rails are in the market, with the probability that some important contracts will be closed soon for delivery during the last half of the year. Heavy Sections continue to be quoted at $28, Chicago, while Light Sections are offered at $33 to $35. There has been an active demand for Track Supplies, with moderate sales on the basis of quotations. Fastenings are quoted as follows in carload lots: Splice Bars or Angle Bars, 2c.; Spikes, 2.30c. to 2.40c.; Track Bolts, with Hexagon Nuts, 2.85c. to 3.10c.; Square Nuts, 2.70c. to 2.95c.

Billets.—The feature of the market has been the offering of round amounts of foreign Billets on the basis of $31.50, Chicago, and at the moment transactions aggreating 15,000 tons are pending for delivery into July, 1902, with the probability that all or part of the offerings will have been sold in the next few days. Foreign holders have made a material reduction in asking prices, the difficulty now being only to obtain ample freight room or reasonable through freight rates to interior points in this country. Domestic Open Hearth Forging Billets continue very scarce, with an urgent demand, prices being nominally held at $39 to $42, according to urgency of the buyers and time of delivery.

Old Material.—There has been increased activity in Old Steel Rails, with larger offerings and a more active demand, resulting in the sale of 2000 tons for relaying purposes at about $32; 200 tons ditto at $31, Chicago, and 600 tons for rerolling at $25.40. One large railroad is offering 4000 tons of Old Rails for relaying, 72 lbs., at $32, and another railroad has on the market 500 tons ditto, 60 lbs., at $32, with buyers slightly under these figures. For

other Material there has been but a moderate movement and quotations have continued steady. The following are the approximate quotations per gross ton:

Old Iron Rails	$24.00 to $25.00
Old Steel Rails, mixed lengths	17.50 to 18.00
Old Steel Rails, long lengths	25.00 to 26.00
Heavy Relaying Rails	31.00 to 32.00
Old Car Wheels	19.00 to 20.00
Heavy Melting Steel Scrap	16.50 to 17.00
Mixed Steel	13.50 to 14.00

The following quotations are per net ton:

Iron Fish Plates	$21.00 to $21.50
Iron Car Axles	24.00 to 24.50
Steel Car Axles	21.50 to 22.00
No. 1 Railroad Wrought	19.50 to 20.00
No. 2 Railroad Wrought	17.25 to 17.75
Shafting	18.50 to 19.00
No. 1 Dealers' Forge	16.00 to 16.50
No. 1 Busheling and Wrought Pipe	13.50 to 14.00
Iron Axle Turnings	13.00 to 13.50
Soft Steel Axle Turnings	12.50 to 13.00
Machine Shop Turnings	12.50 to 13.00
Cast Borings	8.50 to 9.00
Mixed Borings, &c	8.00 to 8.50
No. 1 Boilers, cut	13.00 to 13.50
Heavy Cast Scrap	14.00 to 14.50
Stove Plate and Light Cast Scrap	11.00 to 11.50
Railroad Malleable	16.00 to 16.50
Agricultural Malleable	14.00 to 14.50

Metals.—An easier tone has prevailed for Copper, but prices have remained unchanged with a moderate volume of business at 13c. for carload lots of Lake. Pig Lead is moving moderately at 4.05c. for Desilverized, and 4.15c. for Corroding, in 50-ton lots. Selling prices on small lots of Old Metals are as follows: Heavy Cut Copper, 11½c.; Red Brass, 11¼c.; Copper Bottoms, 10¼c.; Pipe Lead, 3.90c.; Zinc, 3.20c.

Coke.—There is a fair demand and steady market for Virginia and West Virginia Coke, which is in more ample supply, while even less difficulty is experienced in shipments from the Connellsville field. Spot Coke is selling at $5.50 and contracts are unchanged at $5.25 for Standard 72-hour Connellsville Foundry Coke. Virginia and West Virginia Cokes selling at $5 to $5.50.

Geo. Whiting Company, 428 to 448 North Halsted street, Chicago, Ill., are in the market for the following new or second-hand machinery: 36 x 36 x 12 inch planer; universal drill, 5-foot arm; 31-inch swing lathe, 16 feet between centers; 18 to 20 inch shaper, and a number of small drills and lathes; portable engine and boiler, 20 to 30 horse-power, and also miscellaneous shop equipment.

Philadelphia.

FORREST BUILDING, April 29, 1902.

The change of character in the Iron and Steel trades since last week is not very distinct, yet there is an impression that the tendency is toward easiness. Not in the sense that there is either dullness or weakness, but buyers are less clamorous, and seem inclined to wait their turn, rather than force their orders on unwilling sellers. Scarcity continues in Pig Iron and increasing scarcity in Steel, but in the more advanced products buyers can get pretty fair deliveries, except Structural Shapes, which are as scarce as they have ever been. Some importations have been made and ordinary specifications can be filled from store, but the relief is only partial, although "every little helps." Offerings from abroad are now more general, however, and at a price material could be brought in with a fair degree of promptness. As above mentioned, something has already been done in that way, but so far it has been mostly experimental, and whether it will assume large proportions or not depends upon prices. At the present time there is no margin for extensive operations. Middlesbro No. 3 would cost from $18.25 to $19. c.i.f., and Hematites $20.50 to $21. Scotch Iron is also offered at prices varying from $21 to $22.50, but at these figures nothing can be done, although they may indicate that we are pretty near to high water mark on our own products and are not much beyond the reach of foreign competition. No harm has been done yet, but the reverse, by affording some little relief and by giving assurance that Iron can be had outside of our own sources of supply, if there is any great necessity for it. For the present, however, there is a tendency to wait developments, which can hardly be unfavorable, but there is some doubt whether we can get much beyond the high degree of prosperity which the country is now enjoying.

Pig Iron.—Business is not on a large scale, for the reason that the great bulk of requirements are already provided for, and, moreover, there is little or nothing for sale. It should not be understood that everything is cleaned up to the last ton of Iron, but there is so little available that makers are inclined to keep what little they have for needy cases. These are in evidence daily, but from one source or another buyers can generally get what they want; but the smaller the quantity the smaller the difficulty in getting the Iron, and *vice versa*. It would be very difficult to secure lots of 1000 tons each, unless for extended deliveries, and even then prices would be pretty high. The difference in prices between 60 to 90 days' deliveries and three to six months' deliveries is gradually fading out of sight, and present appearances give but little hope for lower prices for some months to come, as stocks are down to zero, while the amount of work under way and which must be completed some time during the year is enormous. A good deal of confidence is placed on a larger furnace output from this time forward, but under the most favorable conditions it will require months before normal conditions can be reached. The best authorities are inclined to the idea that the increase in production will not be as large as is generally expected, as a great many furnaces must of necessity go out for repairs. Those that go in, however, will be of large capacity, but the question of actual gain is a matter of more or less uncertainty. Prices are practically the same as last week. The market is irregular and uncertain, each transaction being based on the circumstances as to time of delivery, character of Iron, &c.; but on the average of business prices are virtually unchanged, as follows, for Philadelphia and nearby points:

No. 1 X Foundry	$20.50 to $21.50
No. 2 X Foundry	19.75 to 20.50
No. 2, Plain	19.25 to 19.75
Standard Gray Forge	18.25 to 18.50
Ordinary Gray Forge	17.75 to 18.00
Basic (Chilled)	19.00 to 19.50

Billets.—Steel is not to be had in the open market, so that the only alternative is to hunt for some one who can spare a little and make the best terms possible in regard to price. Nominally $33.50 to $34.50 is about the figure for soft Steel, but a buyer might possibly be willing to pay $35 and still not be able to place an order.

Muck bars.—Everything appears to be close sold up; $32 to $33, f.o.b. seller's mill, nominal quotations.

Plates.—Business is of a very satisfactory character, a little too much of it perhaps for comfort, as no one likes to turn business away if there is any possibility of handling it. Mills recognize the desirability of standing by their regular trade, however, which is so large that there is but little chance for outside orders. Some business of this kind has been taken, but the tonnage was cut down to about one-half, which was as much as was felt safe in accepting. Prices are firm as follows for Steel Plates: Universals, 1.95c. to 2c.; Sheared, 1.95c. to 2c.; Flange, 2c. to 2.10c.; Fire Box, 2.15c. to 2.20c.; Marine, 2.25c. to 2.30c. Charcoal Plates: C.H. No. 1, 2½c.; C.H. No. 1 Flange, 3c.; C.H. No. 1 Flange Fire Box, 3½c.

Structural Material.—The stringency continues, the few lots brought in from abroad having very little effect on the general market. Prices remain as last quoted, but for prompt deliveries full outside figures and sometimes high premiums have to be paid. Prices for nearby deliveries are as follows: Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.; Angles, 1.75c. to 1.85c. Store prices for immediate deliveries are about 2.25c. to 2.50c. for imported Angles.

Bars.—There is a good volume of business and mills are in most cases kept fully employed. Steel Bars are much oversold and deliveries hard to get without more or less delay. Prices firm as follows. Iron Bars, 1.92c. to 1.95c.; Steel Bars, 1.80c. to 1.85c.

Sheets.—Business is active and mills are fully employed, with a great deal of inquiry for deferred deliveries. Stocks at mills and in store are at a low point, so

that everything that can be made passes into consumers' hands without delay. Prices for carload lots and upward of best Sheets (and a tenth less for common qualities) are about as follows: No. 10, 2.20c. to 2.30c.; No. 14, 2.50c.; Nos. 16 and 17, 2.90c.; Nos. 18-21, 3c.; Nos. 26, 27, 3.20c.; No. 28, 3.30c

Old Material.—The market is feverish and irregular, and in some cases has an easier appearance A great deal of material is wanted, however, and at inside figures there is no trouble in finding buyers. Bids and offers are about as follows for deliveries in buyer's yards: Low Phosphorus Scrap, $25 to $26; Heavy Melting Steel, $21 to $22.50; Steel Rails, short lengths, $21 to $22; Choice Railroad Scrap, $24 to $25; No. 1 Yard Scrap, $20 to $21; No. 2 Light Forge, $17 to $18; No. 2 Light, old, $15 to $16; Machinery Cast, $17.75 to 18.50; Iron Rails, $26 to $27; Old Car Wheels, $19.50 to $20.50; Iron Axles, $27 to $28; Steel Axles, $25 to $26; Wrought Turnings, $17 to $18; Cast Borings, $10 to $10.50.

The offices of the Pocahontas Coal & Coke Company have been removed to the Arcade Building.

Cleveland

CLEVELAND, OHIO, April 29, 1902.

Iron Ore.—It is coming pretty close upon the time when the market conditions will force the big shippers to determine what is to be their policy regarding wild chartering during the coming year. The market already begins to present some of those features which a year ago brought out the most extraordinary policy on the part of the United States Steel Corporation, that of maintaining an absolutely stable rate of freight throughout the year. At present the market seems to be as badly overloaded with tonnage as it was a year ago. The shippers are daily having offered to them more boats than they can possibly load, and even the boats which are placed under charter and sent down the lakes are by no means sure of getting a place at the dock when they reach the lower lake ports. In four weeks the docks have been twice congested with boats and the end of that sort of thing is not yet. While the tonnage offered to the shippers is in excess of the demand for it, the latter class, and especially the Steel Corporation, are not chartering everything that is presented, with the result that some boats are forced into other lines of trade and are breaking down the rates of the lakes generally. At present, however, there is no effort to break the rates on Iron Ore, the shippers simply paying the rates which were established at the beginning of the season, seemingly in disregard of the market conditions. The shipments to date have been very much lighter than was expected when navigation opened so early in the spring and the estimates will have to be revised for April. It is doubtful if over 1,000,000 tons were shipped during the month. The reports from the various lake docks indicate that the movement to the furnace stock piles has been brisk, with the car supply, however, not up to the full measure of the requirements. There have been a few small sales reported, but the selling for the year seems to be about at an end. The quotations do not change from $4.35 for Bessemer Old Range, $3.25 for non-Bessemer Old Range and Bessemer Mesaba and $2.75 for non-Bessemer Mesaba.

Pig Iron.—The demand for Pig Iron seems to retain its vigor, although it has long since ceased to be possible to get any amount of Iron on the open market. In this locality some small amounts of Iron have been sold during the past week, mostly off Irons or Charcoal Iron. Of the latter several 100-ton lots have been covered. The prices are holding up well and seem to be increasing with the scarcity of material. In the Valley there is hardly any Iron for immediate shipment and but little more to be had for delivery later in the year, although some shippers are offering odd lots to be shipped during the third quarter. On this material the price is $20 for No. 2 in the Valleys. All along the line the consumers are showing great eagerness for material, and whenever any Iron is offered it is gobbled up immediately. This is easily accounted for, since recent computations made by some of the producers in this district indicate that not more than 75 per cent. of the consumers have covered their needs for the year, while from 90 to 95 per cent. of the Pig Iron has been placed under contract. Some consumers are already suffering for Iron and are taking it from whatever source it can be had, almost disregarding the price. Some of the Southern Ohio furnaces have a little Iron yet on the market for delivery during the last half, and they are demanding $21 for No. 1 and $20 for No. 2 at the furnace, making the quotations $22.45 and $21.45 respectively at Cleveland. The Southern furnaces are also selling some Iron in this market now and are demanding and getting $16, Birmingham, on No. 2. The off Irons are bringing about $1 a ton less than the standard grades and the supply is about sold up. Nothing is being done in either Bessemer or Basic. Both of the Cleveland producers are entirely sold up for the present year and the furnaces are off of the market. The inquiries for material are coming in daily, however, and the field seems capable of much greater development in the way of sales where there is any Iron to be had. So far there is not a break in the prospect for continued activity of the very highest order for the coming year. The output at present is about up to normal, all conditions being favorable for rapid production. The Coke supply is entirely adequate, and while the Ore is moving rather slowly away from the lake docks there is no shortage at the furnaces, since most of the producers were able to collect some surplus during the winter months. During the last week the furnace workmen in the Valleys presented a new scale of wages for the consideration of the owners. It was to have become effective May 1, but a clause in the agreement requires that 30 days' notice must be given when there is to be an increase in wages. According to this agreement the men have postponed any definite action until June 1. The workmen have demanded that furnaces be run with three shifts instead of two, and that the wages of each individual be the same under the eight-hour day as under the 12-hour day. The furnacemen are inclined to refuse to accept the new scale, and some delay in production is expected while the differences are being adjusted.

Finished Material.—The demand for Finished Material is still far above the supply of it, and some of the consumers in this district are suffering. The situation is intensified when it is learned here that some of them cannot import Steel at prices which will permit them to enter into competition with those obtaining their supply from the adjacent mills. This is particularly true of the Structural Material supply. The scarcity of this material from the mills in this territory is now notorious, and some of the concerns here failing to get material at home have thought to go abroad for it. Three Cleveland concerns have inquiries in with foreign producers amounting to quite a large tonnage, but are now halting on the price that has been offered, which is practically laid down at New York, duty unpaid, at the price which the Eastern consumers would have to pay on the Pittsburgh basis, plus the freight to tidewater. The nominal quotations in this territory hold firm at 1.70c. on mill sales and 2¼c. to 3c. on store sales, with, however, some dealers who have small lots taking larger profits than the store quotations indicate. The Bar situation is cleared up some. Iron Bar producers have come out universally on the 1.80c., Pittsburgh, base, and all of the Iron is being sold at that price. Bar Steel is selling at 1.60c., Pittsburgh, for Bessemer, and 1.70c., Pittsburgh, for Open Hearth. The larger sizes are to be had only after four or five months, while the Flat Bars and smaller sizes are available in a shorter time. The Plate demand is increasing and the supply seems to be falling shorter, with the inevitable result that those who are taking premiums are increasing them. The mills in this territory are entirely sold up, and the consumers are depending upon the Eastern surplus and what is to be had among the jobbers. The Eastern mills are contenting themselves with adding the freight from the Eastern mills to the Pittsburgh basis of 1.60c., while the smaller mills here which have a little uncovered capacity and those who have Plates for sale are taking larger profits, ranging from $2 to $4 a ton over the Pittsburgh quotation. The Pipe demand is quite heavy with the quotations unchanged, the supply still being ade-

quate to the demands. Black Pipe is bringing 60 and 67 off list, Pittsburgh basing discounts, and Galvanized Pipe is bringing 48 and 55 off list. In Sheets the demand keeps up, with the supply fairly good, the sales as yet not having consumed the output for any great length of time ahead. The difficulty in getting Sheets Bars is the most serious danger which the producers have to face, and the only possible cause at present of coming shortage in the supply. The sales are made on the new prices adopted a week ago, in which No. 10 is the base for the gauges up to No. 16, the price on the former, out of store, being 2.50c. For the gauges between Nos. 16 and 28 the price on No. 27 of 3.50c. to 3.60c. is the base.

Old Material.—The market is quite active, with the supply of material increasing, bringing with it the natural tendency toward lower prices, although the market has not changed. The new quotations of last week are continued, as follows: No. 1 Wrought, $19.50 net; Iron Rails, $27.50 gross; Iron Axles, $26 gross; Cast Borings, $10 gross; Wrought Turnings, $15.35 gross; Cast Scrap, $15.50 net; Car Wheels, $19 gross; Heavy Melting Steel, $19 gross; Old Steel Rails, $20 gross.

Cincinnati.

FIFTH AND MAIN STS., April 30, 1902.—*(By Telegraph.)*

There is so very little doing in Pig Iron and so very little change in the general situation that a few words will suffice to express the conditions. The market is not active, simply because there is no "or very little" standard Iron offering. There still appears to be a shortage of almost all grades for delivery during the next 60 days. What there is in reserve for delivery after July 1 is not known, and it is the unknown quantity which puzzles the buyer. The meeting of the $12 furnaces in New York, which was set for last week, did not materialize so far as any definite results indicate. Some of these furnaces have hinted to their agents here that while prices stand as they are for the time being it will only be a week or two until they are free to sell, and that they will then be disposed to listen to a scale of prices on the basis of $15, Birmingham, for No. 2. That is all there is to say regarding the situation so far as these Southern furnaces are concerned. There is a pretty general understanding in regard to values, and while some little Iron has been sold as high as $16, Birmingham, for No. 2, yet a range of $15 to $15.50 about covers the actual price-list. Freight rate from Hanging Rock district is $1.10, and from Birmingham $2.75. We quote, f.o.b. Birmingham, combination prices:

Southern Coke, No. 1	$12.50
Southern Coke, No. 2	12.00
Southern Coke, No. 3	11.50
Southern Coke, No. 4	11.00
Southern Coke, Gray Forge	11.00
Southern Coke, Mottled	11.00
Southern Coke, No. 1 Soft	12.50
Southern Coke, No. 2 Soft	12.00

Other and more general quotations, f.o.b. Cincinnati:

Southern Coke, No. 1	$18.25 to $18.75
Southern Coke, No. 2	17.75 to 18.25
Southern Coke, No. 3	17.25 to 17.75
Southern Coke, No. 4	16.75 to 17.25
Southern Coke, No. 1 Soft	18.25 to 18.75
Southern Coke, No. 2 Soft	17.75 to 18.25
Southern Coke, Gray Forge	16.75 to 17.25
Southern Coke, Mottled	16.75 to 17.25
Ohio Silvery, No. 1	20.85 to 21.35
Ohio Silvery, No. 2	20.35 to 20.85
Lake Superior Coke, No. 1	21.35 to 22.35
Lake Superior Coke, No. 2	20.35 to 21.35
Lake Superior Coke, No. 3	19.35 to 20.35
Car Wheel and Malleable Irons.	
Standard Southern Car Wheel, chilling grades	$21.75 to $22.75
Standard Southern Car Wheel, No. 2	21.25 to 22.25
Lake Superior Car Wheel and Malleable	21.25 to 22.50

Old Material.—The market is quite firm, though trade has not been very active; quotations are practically unchanged. We quote dealers' buying prices, f.o.b. Cincinnati, as follows, No. 1 Wrought and Iron Axles per net tons, others gross tons: No. 1 Wrought Railroad Scrap, $18.50 to $19; Iron Axles, $25 to $25.50; Steel Rails, rolling mill lengths, $24 to $24.25; same, short lengths, $17 to $17.50; Car Wheels, $19 to $19.50; Cast Machine Scrap, $14.

Gerald Lomer, an iron merchant of Montreal, reports the sale of 12,000 tons of German steel rails to the Canadian Pacific Railroad.

St. Louis.

CHEMICAL BUILDING, April 30, 1902.—*(By Telegraph.)*

Pig Iron.—A continuance of the quiet conditions in the Pig Iron market at this point is again manifest the week just past, and while the interests here are in no position at present moment to supply any considerable demand there seems to be a lack of serious nervousness on the part of the larger buyers, and from this an observer is led to the impression that their needs are very well covered for some months. High prices rule for all the product available for immediate delivery, but as the demand and inquiry seem to be on a light scale the market is not apt to undergo any severe test for a few weeks. When active buying is renewed some think the demand will be provided for without any material advance in price, while others take the stand that scarcity will become more pronounced and prices are bound to harden. The serene and quiet mind the buyers are showing makes it appear that the more conservative argument is the one accepted. We quote for cash, f.o.b. St. Louis, as follows:

Southern, No. 1 Foundry	$19.25 to $19.50
Southern, No. 2 Foundry	18.50 to 18.75
Southern, No. 3 Foundry	18.00 to 18.25
Southern, No. 4 Foundry	17.50 to 17.75
No. 1 Soft	19.00 to 19.25
No. 2 Soft	18.50 to 18.75
Gray Forge	17.50 to 17.75
Southern Car Wheel Iron	22.50 to 24.00
Malleable Bessemer	21.50 to 23.00
Ohio Silvery (8 per cent. Silicon)	.... to 22.00
Ohio Strong Softener, No. 1	21.50 to 23.00
Ohio Strong Softener, No. 2	21.00 to 23.00

Bars.—No marked change in the demand for Iron and Steel Bars is to be reported, and the jobbers are caring for a very fair business. We quote from the mills: Iron Bars at 1.90c., Steel Bars at 1.90c. to 2c. Jobbers quote Iron Bars at 2.25c., Steel Bars at 2.25c., full extras.

Rails and Track Supplies.—Demand and inquiry for goods of this class are said to continue very heavy, with prices quoted on same basis as our last report. We quote: Splice Bars at 2.10c. to 2.15c.; Bolts, Square Nuts, 3c. to 3.10c.; with Hexagon Nuts, 3.25c. to 3.30c.; Spikes, 2.35c. to 2.45c.

Sheets.—A good demand still rules for all grades of Sheets and the price-list same as previous week. Jobbers quote Stove Pipe size, No. 27, at 3.60c. to 3.65c.

Angles and Channels.—The jobbers say that the demand for Small Angles and Channels is of fair volume, and the price for material of this class continues at 2.50c., base.

Pig Lead.—A firm undertone can be said to rule in the Lead market, but trading is on a light scale. Chemical at 4c., and Desilverized at 4.05c.

Spelter.—Little change in the order of affairs in the Spelter market has come about the past week, and transactions continue on a light scale. Prices are quoted at 4.15c. to 4.17½c.

Birmingham.

BIRMINGHAM, ALA., April 28, 1902.

The efforts to find out just what is being done in the Iron market these days result mainly in securing much know nothing information and very little that one can rely upon as solid, substantial facts of interest to your readers. It is difficult to find an Iron man who will admit that he is doing anything or has any interest in the market. Yet we know that some Iron is sold every week. But the particulars frequently come to us from the buying markets. Most persistent inquiry develops the fact that recent sales have been made for delivery the last half of the year on the basis of $15 for No. 2 Foundry. The amount sold was only moderate in volume. For spot and nearby deliveries quotations vary. Conditions as last reported are unchanged. Some quote No. 2 Foundry at $15 and some say there is no trouble to get $16 for it. Some No. 1 Soft was offered at $16.50 and sold. No. 3 is anywhere from $14 to $15, and No. 4 Foundry and Gray Forge about $14. The orders being received show that the buyers have attained proficiency in mixing, as they frequently order car lots, proportioned as to grades according to their experience in mixology.

This aids greatly the furnaceman in keeping furnace yards clean, for he is not under the necessity of waiting to accumulate a whole car of one grade before he can ship it. If he can furnish the proportions of the grades that suit buyers he need not wait for it to cool before shipping. This is selling in a retail way and the prices obtained are retail prices. The proportions of grades vary widely and depend upon the character of work for which supplies are needed. The result is that a prompt buyer is always on hand to snap up what can be had. Several letters have been shown your correspondent from buyers to the effect that their wants must be supplied up to September and asking for assurances of favorable action. One peculiarity of these letters was the omission of price. That was no object. It was Iron they wanted and price did not stand in the way. When this will end is the puzzling problem. Locally and in contiguous territory some important interests have gone bare of stock and have had to shut down until supplies could be had. Others say that purchases long overdue are being doled out to them just in sufficient quantity to keep them going. With this condition of affairs existing there is only a moderate demand prevailing. This is explained by the fact that buyers know that offers for Iron at present would not meet favorable action. The leading interests still quote on the basis of $12 for No. 2 Foundry, but the resultant business is barely sufficient to maintain the quotation. There seems to be a restlessness in some quarters concerning its indefinite continuance and the opinion is growing that the situation will change when the various scales of wages and costs are fixed for the coming year. The law of supply and demand will then dominate values. There is nothing new to be said concerning Steel. The mill is doing all it can and finds still ready buyers for output.

Some further changes in the *personnel* of the Tennessee Coal, Iron & Railroad Company have been made. John M. Franklin, lately with the W. J. Rainey Coal & Coke Company at Connelsville, becomes manager of the coal mines, and J. A. Thomas, the master mechanic of the company, severs on May 1 his connection with the company.

Some new incorporations have been made. The Gass Coal Company have been organized to open and work certain mines on Loss Creek in Walker County. The seam of Coal is the valuable Black Creek seam. The Shades Creek Ore Company have also been launched and capitalized at $50,000. The leading spirits in it are H. F. De Bardeleben and T. H. Aldrich, both of them well-known promoters, operators and developers. The company have the usual liberal charter.

A sensational suit has been filed by some minority stockholders of the Ensley Land Company against the directors of that company and who at the same time were prominent officials of the Tennessee Coal, Iron & Railroad Company, who were the parents of the land company. The plaintiffs ask the court to set aside actions based on orders of the court and declare null and void the various acts and proceedings because of deceit and fraud, &c. The prominence of the parties concerned gives a zest to the interest excited by the allegations. Further than that it involves the validity of title to much property that has become very valuable. The suit promises to be bitterly contested on both sides. The conclusion will show that the parties to the suit acted within the pale of the law and according to the mandates of the court. It was a case of "put up or shut up" at a time when the growth of Ensley even to its present proportions and money value was a vision of the dreamer. The dreamer was Enoch Ensley and he was dead.

No. 2 Furnace of the Sloss Company now being overhauled will not be a producer before June 1. Their No. 1 Furnace, recently rehabilitated, during the month of March, turned out daily 200 tons. At Bessemer No. 2 Furnace of the Tennessee Coal, Iron & Railroad has been put in blast, as has also one furnace at Ironaton. Barring accidents, we will soon be running full handed. The Car Service Association report for March shows still further improvements in business conditions, as they handled 10,000 more cars than during March, 1902. The Eureka Foundry & Machine Company have been incorporated with capital of $5000, and another coal company with a $10,000 capital. Then the Standard Fertilizer Company have come to the front again, and announce the way clear to the accomplishment of their plans, and the organization of the company on a capitalization of $1,000,000. It is openly stated that the preferred stock, amounting to $500,000, has been taken by New York capitalists. The plant is to be located at Bessemer on 20 acres of ground secured, and the base of the fertilizer produced is the furnace slag which, until lately, went begging as a free gift.

Pittsburgh.

(By Telegraph.)

PARK BUILDING, April 30, 1902.

Pig Iron.—There is very little Pig Iron to be had, and sellers who have any to spare can get almost any prices they ask. Up to $20 a ton is being offered for Bessemer Iron for shipment over the last six months of this year, and it is intimated that even $21 might be done. Gray Forge Iron is $19.50 to $19.75, Pittsburgh, and sales have been made for shipment over all of this year at $19.75. No. 2 Foundry Iron is $20.50 to $21, Pittsburgh.

Steel.—Only small lots of Billets are being sold, and these bring $32 to $33, Pittsburgh, while a few sales of small lots for prompt shipment are reported at $34. Several lots of foreign Sheet Bars for delivery in the Pittsburgh district and in Eastern Ohio are reported to have been sold at $33.50 to $34, delivered.

(By Mail.)

The Iron trade has not shown any new developments in the past week. The fact that the Blast Furnace Workers' Union have postponed their demand for an eight-hour day for blast furnace labor to June 1 indicates that the men are not sure of their position, and it is possible the whole matter will be dropped. Efforts are being made to organize the men employed at the furnaces in the Pittsburgh district, but so far without much success. Only a small tonnage in Pig Iron and Steel is moving, but very high prices are being obtained. Finished Material is somewhat quiet, consumers being covered, but specifications on contracts are coming in very freely and the mills have work for months ahead.

Muck Bar.—The market is very firm, and we quote best grades of Muck Bar at $34.50 to $35, Pittsburgh. A sale of 2000 tons is reported at about the first named price.

Spelter.—The market is active, and best grades of Western Spelter are held at 4.25c. to 4.35c., Pittsburgh. A sale of 50 tons is reported at the lower figure.

Ferromanganese.—A local consumer of Ferro has bought a large tonnage of German at about $48, delivered, Pittsburgh. Domestic is very scarce.

Rails.—It is claimed that Standard Section Rails for prompt delivery have sold here at $30. One lot of about 2000 tons of imported Rails is being offered in this market.

Plates.—The Plate Association meets early in May, but it is not believed there will be any advance made in prices. Tonnage in Plates is very much better, and the leading mills are well filled up for the next three months. We quote: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c. at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price to 3c. Plate more than 100 inches wide, 5c. extra per 100 lbs. Plate 3-16 inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra; No. 9, $5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms, net cash in 30 days. Small lots of Plates from store are sold on the basis of 1.70c. to 1.75c. for Tank, with the usual advances for the higher grades.

Structural Material.—The Cambria Steel Company, who some time ago took a contract for 9000 tons of Shapes for the new shops of the Westinghouse Company, at Trafford City, are now making deliveries of this material. The American Bridge Company have

taken contracts for some buildings in this city, which will require 6000 to 8000 tons. Orders have been placed abroad for a round tonnage of Structural Material for shipment to this country, the domestic mills being utterly unable to supply the heavy demand. The official prices no longer represent the actual market, as 2.50c. has been offered for Beams for prompt shipment, without getting them. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inches, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.50c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh. It is probable that Beams in small lots for prompt shipment would bring close to 3c. per lb.

Hoops and Bands.—We continue to quote Hoops, Bessemer stock, at 1.90c. for 250-ton lots and over and 2c. in less quantities. Bands are 1.60c. for Bessemer stock, 12 gauge and heavier, with an advance of $2 for Open Hearth.

Sheets.—The Sheet market is in very satisfactory condition, demand being heavy for both Black and Galvanized, and prices are firm. We quote No. 27 Black Sheets, box annealed, one pass through cold rolls, at 3c, and No. 28 at 3.10c. For good orders these prices might be shaded about $1 a ton. Jobbers quote small lots of Black Sheets from store on the basis of 3.10c. to 3.20c. for No. 27, and 3.15c. to 3.25c. for No. 28. There is an active demand for Galvanized Sheets, and we quote at 70, 10 and 5 off in carloads, and about 70 and 5 for small lots. Two of the leading Sheet mills now quote net prices for Galvanized and on the basis of 4.25c. in carloads for No. 27, and 4.50c. for No. 28. The usual advances are charged for small lots. All these prices are f.o.b maker's mill.

Rods.—We quote Bessemer Rods at $36 to $37, and Basic at $38 to $40, depending on deliveries wanted.

Skelp.—We quote Grooved Iron Skelp at 2.10c., and Sheared at 2.15c. to 2.25c. Steel Skelp can hardly be had at any price.

Merchant Steel.—Most of the big contracts have been placed, but we note a particularly heavy demand for Tire Steel. The mills are filled up for months ahead. We quote: Tire Steel at 1.80c. to 2c.; Open Hearth Spring, 2.25c. to 2.50c.; Hammered Lay Steel, 3.75c. to 4c.; Cold Rolled and Cold Drawn Shafting, 50 per cent. off in carloads and 45 per cent. in less than carloads in Basing Territory; Tool Steel, 6½c. to 7c. for ordinary grades, 12c. and upward for special grades, all f.o.b. at mill.

Merchant Pipe.—Tonnage in April has been about as heavy as in March, which was a banner month. A feature of the Pipe market is the heavy contracts for Line Pipe that are being placed. Among these was 300 miles of 8-inch, 160 miles of 16-inch, 35 miles of 10-inch and other smaller contracts. The Pipe market is very firm, and the mills have work for months ahead. Pittsburgh basing discounts in carloads are as follows:

Merchant Pipe.	Black. Per cent.	Galvd. Per cent.
⅛ to ½ inch, inclusive	60	48
¾ to 12 inch, inclusive	67	55

Boiler Tubes.—Demand is heavy, and the mills are filled for two or three months. Discounts for small lots are as follows:

Boiler Tubes.	Up to 22 feet. Per cent.
Steel.	
1 to 1½ inch, inclusive	45
2¼ inch to 5 inch, inclusive	63½
1¼ inch to 2½ inch and 6 inch to 13 inch, inclusive	58
Iron.	
1 inch to 1½ inch and 2½ inch	39
1¾ inch to 2¼ inch	38
2¾ inch to 13 inch	48

The mills quote lower prices than the above to the jobbing trade for large lots.

Coke.—The car supply is steadily improving, and furnaces are now getting Coke about as fast as needed. The *Courier* gives the output of the Connellsville region last week at 222,284 tons, and shipments 11,579 cars. Furnace Coke is $2.25 a ton, and 72-hour Foundry, $2.75 to $3 a ton. Coke for prompt shipment would likely bring higher prices.

Scrap.—Demand for Scrap is heavy, and as the supply seems limited, prices are steadily going up. We quote Heavy Melting Stock at $19 to $20 in gross tons; No. 1 Wrought Scrap, $20 in net tons; Crop Ends, $24 to $25 in net tons, and Old Iron Rails, which are exceedingly scarce, are said to have sold at $25 in gross tons delivered.

The offices of Richardson & Co., Incorporated, dealers in Iron and Steel Scrap, have been removed from Publication Building to Room 1222, Westinghouse Building, Pittsburgh.

The Bessemer plant of the Republic Iron & Steel Company is closed down by a strike, the pourers and the men in some of the other departments demanding an eight-hour day, which has been refused.

The offices of F. H. Phillips & Sons Company, Sheet and Tin Mills Chilled Rolls, have been removed from the Schmidt Building to room 721 Park Building, Pittsburgh.

New York.

NEW YORK, April 30, 1902.

Pig Iron.—Current business is confined almost entirely to small lots for prompt delivery, to meet urgent necessities. For these fancy prices are being asked and paid. We quote, for summer delivery, Northern Iron, at tidewater, No. 1 X, nominal, $21.50 to $22; No. 2 X, $19.50 to $20; No. 2 Plain, $19 to $19.50; Tennessee and Alabama brands are as follows: No. 1 Foundry, $19.50 to $20.50; No. 2 Foundry, $18.75 to $19.25; No. 3 Foundry, $17.75 to $18.25.

Steel Rails.—Reports are current of the sale of a lot of 2500 tons of foreign rails. As showing the oversold condition of the market we may note the case of a mill which was forced to decline an order of 10,000 tons, for delivery beginning December. We continue to quote nominally $28 for standard sections.

Finished Iron and Steel.—The event of the week has been the placing of an order for about 4000 tons of foreign Structural Material by a shop in this district. The market continues exceedingly strong. We quote at tidewater: Beams, Channels and Zees, 1.75c. to 2.25c.; Angles, 1.75c. to 2.25c.; Tees, 1.80c. to 2.25c.; Bulb Angles and Deck Beams, 2c. to 2.25c.; Sheared Steel Plates are 1.78c. to 1.95c. for Tank, 1.90c. to 2c. for Flange, 2c. to 2.10c. for Fire Box. Refined Bars are 1.80c. to 1.85c.; Soft Steel Bars, 1.80c. to 1.85c.

Metal Market.

NEW YORK, April 30, 1902.

Pig Tin.—After considerable fluctuation prices are again on a higher level. On Monday the market reached the highest point since the decline, which set in about ten days ago. The spot quotation was 28.25c. on Monday. This was in sympathy with the London advance, which brought the spot quotation to £130 on Monday. Trading has been very light here. This market closed to-day at 28¼c. to 28½c. for spot and futures 28c. to 28¼c. The London market closed at £130 for spot and £127 for futures.

Copper.—The market has been very weak during the last few days. Business was slight. Prices have declined steadily. At the close to-day Standard was quoted on 'change at 10.85c. to 11.15c. Lake has declined a shade to 11.75c. to 11.95c., and both Electrolytic and Casting are quoted 11⅜c. to 11⅝c. Despite these market conditions a report from Boston states that the Calumet & Hecla Company are engaged in selling a three months' production at 12½c. The London market is unchanged from last week at £52 15s. for both spot and futures. Best Selected declined 10 shillings to £56.

Pig Lead.—This market is without change and devoid of an interesting feature. The Smelting & Refining Company continue to quote 4.12½c. for Desilverized strict spot and 4.10c., 15 days, New York. London is unchanged at £11 15c.

Spelter.—Prices are unchanged here and abroad, and consumers are still buying in small quantities. Spot is

quoted at 4.42½c.; May, 4.37½c., and June, 4.35c. London is easy at £18 2s. 6d.

Antimony—Is unchanged. Hallett's is quoted 8c. to 8¼c.; Cookson's, 10¼c., and outside brands, 7½c.

Nickel.—The situation is unchanged. Ton lots are quoted at 50c.

Quicksilver.—Prices are on a basis of $48 per flask of 76½ lbs. in lots of 56 flasks or more.

Tin Plates.—The market is entirely unchanged. The American Tin Plate Company are quoting for delivery until October 1 on a basis of $4.19 per box of standard 100-lb. Cokes, f.o.b. New York, or $4, f.o.b. Pittsburgh district. The English market advanced 1½ pence to 13s. 7½d.

The Improvements for the United States Steel Corporation.

It is understood that while the presidents of the constituent companies of the United States Steel Corporation have pretty well determined upon the improvements to plant, a final decision has not yet been made. It is believed that the details will not be finally determined until after the meeting of the stockholders. Reports bearing on the distribution of the fund of about $30,000,000, which is to be applied to betterments, must, therefore, be accepted with reserve. Among the new works there will be two blast furnaces at Edgar Thomson, one at the Ohio Steel plant of Youngstown, one at Lorain, and possibly one at New Castle. It is understood that the largest single amount will be assigned to the National Tube Company, who will probably erect a large tube plant at Lorain and another in the Pittsburgh district, probably at Neville Island. In the same district there is to be a concentration of the plants of the American Bridge Company, on the site purchased some time since at Economy, Pa. The various plants of the American Bridge Company in the West, including the American Bridge Works and the Lassig Bridge & Iron Works, Chicago; the Milwaukee Bridge & Iron Works at Milwaukee, and the Lafayette Bridge Works, Lafayette, Ind., are to be consolidated, and the new works will probably be located on the lake front near the mill of the Illinois Steel Company at South Chicago. The exact location seems to be as yet a matter of some doubt, but as the United States Steel Corporation possess considerable land around South Chicago, the general opinion prevails that the great works will be located there. The Toledo Bridge Works of Toledo, Ohio, are the only Western plant of the American Bridge Company that are not included in the consolidation. The new plant, it is estimated, will be constructed at a cost of $3,000,000. The economical and other advantages to be attained by the proposed change are self evident, not only to the bridge company, but to the Illinois Steel Company as well. It is understood that at the present time the Illinois Steel Company furnish to the American Bridge Company between 3000 and 4000 tons per month, while by the new arrangement they will probably furnish from 150,000 to 200,000 tons annually. There are rumors of other important changes to be made in the local plants belonging to the United States Steel Corporation. It is expected that the work on the new plant of the American Bridge Company will be begun in the near future. It is by no means sure, however, that the plants of the American Bridge Company and the Lassig Bridge & Iron Works will be dismantled. Should there be enough work to keep these works as well as the new plant in operation, which now seems probable, the present works will be continued to be operated. The steel making capacity is to be enlarged by some additional open hearth furnaces at Duquesne, while a large angle mill is to go to Homestead.

The circular of the United States Steel Corporation mentions the fact that $15,000,000 of the new capital raised is to pay for improvements contracted for by the constituent companies before the corporation was formed. These include some purchases of ore property, and such additions to plant as the new blast furnaces of the Illinois Steel Company, the Neville Island plant of the American Steel Wire Company, the additions to plant of different constituent companies in the Wheeling district, &c. It is stated also that about $5,000,000 is due as a final payment on Rockefeller ore property.

OBITUARY.

NOTES.

JOHN AUER, proprietor of the Auer Iron Works, of Williamsburg, died on April 16 from a fall down stairs at his home in Brooklyn, N. Y. Mr. Auer was 76 years old. He founded the iron works that bears his name 50 years ago.

OWEN MCCABE, a manufacturer of boilers in Newark, N. J., died on April 17 at his home in that city after a prolonged illness.

COL. W. H. HASKINS, president of the Elk Valley Coal & Iron Company, died suddenly of heart disease on April 17 at his home in Knoxville, Tenn., aged 63 years.

BENJAMIN FRANKLIN HOOPER, president of the Colwell Lead Company, of 63 Centre street, New York, died suddenly on Sunday night, April 20, at his home, 130 West Seventy-fourth street. He was the son of John Hooper, who preceded him as president of the Colwell Lead Company. Mr. Hooper, who was 44 years of age, was graduated from the College of the City of New York and married Edith May Walker, daughter of Alva S. Walker, vice-president of the Colwell Lead Company. He was a member of the Colonial, Hardware, Fulton, New York Athletic and City College clubs, the Chamber of Commerce, New England Society, and St. John's Lodge, F. and A. M.

GUSTAVE PITARD of the wholesale and retail hardware firm of G. Pitard & Bro., New Orleans, La., died a short time since. Mr. Pitard commenced the hardware business in 1869.

WILLIAM LATHROP POTTER, brother of O. W. Potter and for 30 years manager of the North Chicago Rolling mills, died at his residence in Chicago on April 20. Mr. Potter was born in Wills, Vt., April 16, 1826, and passed his boyhood, together with part of his early manhood, upon his father's farm. In 1850 he moved to Kalamazoo, Mich. A few years later he migrated once more, this time to Wyandotte, Mich., where he was employed by the late Capt. E. B. Ward in an important official capacity at his rolling mills. In 1859 Mr. Potter was made manager of the North Chicago Rolling Mills, a position he retained until 1889, when he retired from active business.

WILLIAM LAWRENCE STROUD, a well-known New York bar iron and tin plate merchant, died on the 12th inst. He was born in Wales 65 years ago and came to this country in 1870. Very soon after his arrival in this country he entered the iron and tin plate business at 104 John street, New York. He retired shortly after the organization of the American Tin Plate Company in 1898.

A. J. BASSETT, formerly treasurer of the Grand Crossing Tack Company, Chicago, died April 25. Mr. Bassett removed to the West as Chicago sales agent for the Taunton Tack Company about 1870. Later he became connected with the Chicago Tack Company, of which his father, Orrin N. Bassett, was proprietor. In 1883, in connection with the Messrs. Hutchinson, present proprietors of the Grand Crossing Tack Company, he established the business of that company, with which he was connected in an official capacity until he was compelled by failing health to retire from business activity about two years since. Mr. Bassett was a very active and enterprising man and manufacturer, with admirable personal qualities which attracted a multitude of friends.

The Holland Submarine Boat Company have been advised by the British Admiralty that one of their submarine torpedo boats has been accepted by the British Navy.

Maxwell M. Mayer Electric Company, builders of dynamoes and motors, have removed to 216 Centre street, New York.

Iron and Industrial Stocks.

The market for steel and industrial stocks has been strong and fairly active, although somewhat disappointing to those who have expected the exceptional earnings to tell more on the values of shares. There has been some animation in Republic Iron & Steel issues on reports of excellent earnings. The United States stocks displayed some activity. The preferred recovered its dividend quickly and rose as high as 94¾, but has since receded to the level which it has maintained for so long a time.

Colorado Fuel & Iron have gained in strength and there has also been large sales of the new convertible bonds at steadily higher prices. Pressed Steel, common and preferred, have both advanced quite sharply during the week on the reports of good earnings.

On the Pittsburgh Stock Exchange in Pittsburgh last week 5 per cent. bonds of the St. Clair Furnace Company were traded in for the first time, $2000 of the series maturing 1911 and $2000 of those maturing in 1912 selling at par and accrued interest. After these sales 102½ and interest was bid for any series. The 5 per cent. bonds issued by the St. Clair Furnace Company amount to $3,000,000 and they mature in 1910-1939, and interest is guaranteed by the Crucible Steel Company of America.

Pursuant to the recently adopted policy to submit regular quarterly statements of earnings the Pressed Steel Car Company of Pittsburgh last week made public the following statement for the quarter ending March 31:

Earnings from sales produce	$7,381,664
Income from investments	38,000
Gross earnings	$7,419,664
Operating expenses and taxes	6,394,546
Net earnings	$1,025,118
Less fixed charges—interest on bonds and mortgage debt	59,842
Net income	$965,276
Appropriation to cover dividend on preferred stock, $12,500,000, 7 per cent., three months	218,750
Balance to account for	$746,526
Amount charged off for depreciation of plants and properties	67,007
Surplus for dividends on common stock and improvements	$679,519

Dividends.—The Allis-Chalmers Company have declared the regular quarterly dividend of 1¾ per cent. on their preferred stock, payable May 1.

The Shelby Iron Company have declared the regular semiannual dividend of 5 per cent. and an extra dividend of 5 per cent., payable May 15.

The Pressed Steel Car Company have declared the regular quarterly dividends of 1¾ per cent. on their preferred stock and 1 per cent. on their common stock. The preferred dividend is payable May 21. The common dividend is payable May 28.

The Pittsburgh Coal Company of Pittsburgh have declared the regular quarterly dividend of 1¾ per cent. on the preferred stock.

The National Fire Proofing Company of Pittsburgh have declared the regular quarterly dividend of 1¾ per cent.

At Pittsburgh last week the Westinghouse interests paid dividends as follows: Westinghouse Air Brake, 6 per cent.; Westinghouse Machine, common and preferred, 1½ per cent.; Union Switch & Signal, common, 1 per cent.; the preferred, 2 per cent.; Standard Underground Cable, 2 per cent.

The directors of the National Carbon Company have declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable May 15.

The Westinghouse Electric & Mfg. Company have declared a dividend of 1¾ per cent. on the assenting stock, payable May 15.

The Norton Iron Works, Ashland, Ky., manufacturers of steel cut nails, boat spikes, wire nails, wire staples, plain and galvanized wire, have declared the second 10 per cent. dividend since January 1, making 35 per cent. declared by this concern since last November.

The Ashland Sheet Mill Company, Incorporated.—The new sheet mill of the Ashland Sheet Mill Company, Incorporated, at Ashland, Ky., manufacturers of black and galvanized iron and steel sheets, is now in full operation and started off in splendid shape. The main building is 420 feet long and 100 feet wide. The plant contains six sheet mills, six pair and six annealing furnaces. I. A. Kelly is president, T. J. McCullough, vice-president; L. R. Putnam, secretary, and Geo. McCullough, treasurer.

The Cuyahoga Boiler Works, and the Cleveland Manufacturers' Association have taken steps to secure an injunction restraining the striking boiler makers from picketing the Cuyahoga plant and from interfering with the nonunion boiler makers now employed. The strike of the boiler makers has been in effect since March 5. This is said to be the first of a series of suits through which the Forest City Foundry & Mfg. Company, the River Machine Boiler Company, the Long & Murphey Machine & Boiler Company, the Lake Erie Boiler Works and the American Shipbuilding Company will endeavor to break the strike.

The Blast Furnace Workers' Union, embracing blast furnace labor in the Mahoning and Shenango Valleys, recently sent organizers into the Pittsburgh district for the purpose, if possible, of organizing the men employed at the blast furnaces of the Carnegie Steel Company, in Pittsburgh, Bessemer, Duquesne and Rankin. The officials of this organization realize that to make it effective, it must embrace blast furnace labor throughout the central West, and strong efforts are being made to increase its membership.

Operations have been begun for the establishment of a Marconi wireless telegraph station at Sagaponack, a few miles southwest of Bridgehampton, L. I. The station, when completed, is destined to become the most important one in the United States, as it will be in direct communication with Sandy Hook and New York on the one side, as well as Nantucket, Cape Cod and North Shore on the other. Its chief value will be that incoming and outgoing liners will communicate with it with more certainty and accuracy than with any other station along the coast.

We have received the following notification which is being sent to the trade by the Ball Bearing Company of Philadelphia, formerly of Boston: "We hereby give notice that on April 12, 1902, we entered suit through our attorneys against the Roller Bearing & Equipment Company and W. S. Rogers for infringing letters patent owned and controlled by us. We are also preparing to enter suit against users of products covered by our patents."

Heyl & Patterson, Pittsburgh, contracting engineers and builders of conveying appliances, have received an order from the Republic Iron & Steel Company for a slab conveyor, to be installed in their Bessemer Steel Works at Youngstown, Ohio.

The report that the National Steel Company have started work on a blast furnace, at New Castle, Pa., is incorrect. The matter of building another blast furnace at New Castle is under consideration, but nothing definite has been decided on.

J. B. Orbison of St. Louis, Mo., has arrived at Fredericksburg, Va., and taken charge of the Southern Foundry & Machine Works as general manager, succeeding L. J. Milbourne, who will represent the company in Baltimore, Md.

A bill has been passed by the House at Washington, D. C., authorizing the Western Bridge Company to build a bridge across the Ohio River, from Preble avenue, Allegheny, to McKee's Rocks, Pa.

The New York Machinery Market.

NEW YORK, April 30, 1902.

Though the month of March brought out a magnificent volume of business and merchants entered the month just closing with a little doubt of seeing a repetition, they have been agreeably surprised and report that April is closing at least a shade better than the month previous. For some time the market has been devoid of startling developments and this condition still exists. April business has consisted of a good, strong volume of moderate sized orders. It has been a class of trade that is considered very healthful; the kind of business that each merchant endeavors to keep all to himself and sometimes succeeds in doing so. This class of business is certainly productive of larger profits than the sort that the "crowd" are after. A large proportion of the machinery business nowadays comes from prominent concerns who know the type of most machine tools, engine boilers, &c., that they want and go straight to the builder or merchant and buy it without much shopping.

As a result of this gratifying state of affairs the principal shops are now well loaded down with work. Prompt deliveries cannot be obtained and prices are strong, but fortunately are not rushing skyward, despite the good demand and the strength of the market for raw materials.

We hear of an advance having been made by a prominent manufacturer of drop forgings.

Information coming from a good authority says that considerable successful work has been accomplished during the week by the promoters of the American Crane & Conveying Machinery Company. The appraisers have been at work in the West and were quite successful at a plant which has hitherto withheld options. The work is said to be progressing favorably.

Parties who have been advocating the construction of naval vessels at the various navy yards have scored a point. In the Naval Appropriation bill reported to the House last Monday provision is made for the construction of at least one battle ship or one armored cruiser at one of the navy yards. The report also leaves it in the discretion of the Secretary of the Navy to build any or all ships in Government yards. The bill provides for two first-class battle ships, two first-class armored cruisers and two 1000-ton gunboats.

The large engine order which has been in the hands of the White Mountain Paper Company for some time has not yet been placed. A number of very substantial orders for paper making machinery and accessories have been placed during the week. Mr. Morgan, who has been in charge of the purchases at the company's offices at 85 Liberty street, has decided to remain in Portsmouth, N. H., where he has established offices. Charles E. Locke is in charge of the company's affairs at the New York office.

W. A. Post, general superintendent of the Newport News Shipbuilding & Dry Dock Company, Newport News, Va., informs us that improvements and additions to the plant are being made. The work includes extensions to the machine shop and joiner shop and the construction of a new mold loft and ship shed, involving an expenditure of about $250,000. A considerable quantity of new tools and machinery are to be installed, some having already been purchased.

It was announced this morning that the John A. Roebling's Sons Company have purchased a large tract of land near St. Louis for the purpose of erecting a plant. A line of goods similar to the product of the Trenton plant is to be manufactured. F. W. Roebling said that the St. Louis plant is to take care of the Western trade.

The National Engine Company, Rockford, Ill., who were recently incorporated for the purpose of manufacturing an internal combustion engine of the vertical type, have just placed some substantial machine tool orders. The company are using for the present the buildings owned and partly occupied by the Mechanics' Machine Company, to which they are erecting a temporary addition, 40 x 55 feet, giving them a floor space of about 10,000 square feet. The plant will be equipped throughout with the most modern appliances, including a horizontal boring machine with universal table from Detrick & Harvey Machine Company, 60-inch planer from Belmer-Eames Tool Company, 60-inch boring mill from Bullard Machine Tool Company, universal and plain milling machines and universal tool grinder from Cincinnati Milling Machine Company, radial drills from Bickford Drill & Tool Company, friction drills of all sizes from Hill, Clarke & Co., lathes from the Hendy Machine Company, Lodge & Shipley Machine Tool Company, Schumacher & Boye and R. K. Le Blond Machine Tool Company, and shapers from Cincinnati Shaper Company. All other tools, such as automatic screw machines, automatic gear cutters, different sizes of turret lathes, &c., will be installed as needed. The plant is operated by water power.

The engine was designed by Th. L. Léon de Tissandier, chief engineer of the company, who has been a designer in this class of engineering for many of the most prominent firms in both France and Germany during the last 15 years. It will be built in sizes of from two to ten horse-power, either direct or belt connected, and will be especially adapted to the running of small electric light plants. It is claimed that the engine will take care of a dynamo in a most satisfactory manner, no matter how large or small the load may be. This is accomplished by an extremely sensitive governor, which acts on the oil injecting device or gas valve, and correctly calculated fly wheels. There are no automatic valves, everything being operated positively.

The Chase Pulley Company of Providence, R. I., announce that they have recently completed an arrangement with the Amoskeag Mfg. Company of Manchester, N. H., in accordance with which they have taken over their wood rim pulley department, including the fly wheels as designed by Charles H. Manning, their superintendent, and in this connection he has consented to act as consulting engineer for the Chase Pulley Company.

The recently organized Cortland Corundum Wheel Company, Cortland, N. Y., who will build a large addition to the buildings on Railroad street, which they are now getting ready for occupancy, advise us that they will be pleased to hear from parties having lathes of all sizes for sale.

The Robins Conveying Belt Company, whose New York offices are located at 11 Park row, have finished the plans for their new plant at Paterson, N. J., and are now purchasing the equipment. A large portion of the machinery has already been secured, but as the works are to be very extensive there still remains a considerable amount to be purchased.

Abner Doble Company, engineers, San Francisco, Cal., advise us that they are preparing plans for extensive extension of their works. They will be in the market for a large equipment of some heavy machine tools, all of which must be equipped with electric drive. Among these will be a 72-inch planer of heavy pattern with 16-foot table. T. S. Waters is in charge of the new work.

The Empire Steel & Iron Company of Catasauqua, Pa., and 71 Broadway, New York, have placed an order with the Ingersoll-Sargent Rock Drill Company for a $30,000 air compressor plant to be erected at Oxford, N. J. It is stated that extensive operations are under way and planned for the Oxford property.

The purchases of the Quincy Market Cold Storage Company of Boston, Mass., for their new power house include refrigerating machinery from Pennsylvania Iron Works Company, Philadelphia, Pa.; boilers from Atlantic Works, Boston; pumping engines from Snow Steam Pump Works, Buffalo, N. Y.; steam condensing plant from Conover Mfg. Company, New York City, and water circulating plant from Goulds Mfg. Company, Seneca Falls, N. Y. The New England Structural Company secured the contract for the building.

Two rotary converters of 300 kw. each have recently been purchased by the Manchester (N. H.) Traction, Light & Power Company from the Westinghouse Electric & Mfg. Company. They will be located at Hooksett, N. H., and will deliver power for the operation of the Concord and Manchester branch of the Boston & Maine Railroad, this road having entered into a contract for

power with the Manchester Traction, Light & Power Company. The machines are to be supplied with three-phase alternating current, and will deliver direct current at 600 volts. The Westinghouse Company have also recently sold two rotary converters to the South Covington & Cincinnati Street Railway Company, one being of 200 kw. capacity and the other of 400 kw. capacity. The first cement plant in Canada to be operated by electric power is that of the National Portland Cement Company at Durham, Ontario. All of the cement making machinery in this plant will be driven by induction motors supplied with current by two Westinghouse 450 kw. three-phase alternators. These machines are of the engine type with revolving fields and run at 125 revolutions per minute, 3000 alternations and 600 volts. Two exciting units are provided, one consisting of a 62½ kw., 125 volt, engine type, direct current generator, direct connected to an automatic engine, and the other of a 56½ kw. machine coupled to an induction motor. The output of the exciters will be used not only for exciting the fields of the A. C. generators, but also for arc and incandescent lighting throughout the works and grounds. The Westinghouse Company also furnish the eight-panel switchboard and instruments.

The Greenfield Electric Light & Power Company, Greenfield, Mass., will require two 400 kw. generators and water wheels for the power plant they are to erect on the Deerfield River to develop 1000 horse-power. E. Wells is president.

The Norristown Electric Light & Power Company, Norristown, Pa., have just placed orders for three Ames engines of 250, 225 and 100 horse-power, respectively. They have also purchased two 250 horse-power Heine boilers, a Weber stack, 150 feet high, and General Electric dynamos. D. A. Bertolette is the company's superintendent.

The Ellithorpe Safety Air Cushion Company have found it necessary to remove their New York offices from 71 to 31-33 Broadway, owing to increased business.

The Cleveland Machinery Market.

CLEVELAND, OHIO, April 22, 1902.

An unusually large amount of building is going on in this section at present, and a number of new concerns are about to commence work on new plants. One of the daily papers in reviewing the situation in Cleveland states that manufacturing plants representing a total investment of over $22,000,000 are under construction or contemplated for the immediate future in this city. The largest of these is the new blast furnace, which proposition was outlined in the last issue of *The Iron Age*. Among the other plants are those of the Brown Hoisting Machinery Company, Kuhlman Car Company, Browning Engineering Company, L. S. & M. S. repair shops, Cleveland Crane & Car Company, National Wire & Iron Company, Cleveland Frog & Crossing Company, National Acme Mfg. Company, Winton Motor Carriage Company, Baker Motor Vehicle Company, Wellman-Seaver-Morgan Engineering Company, and the big pipe plant and the additional blast furnace which report has it is to be located at Lorain.

Machinery manufacturers say there is little or no change in the business. They are perhaps a trifle better off as regards deliveries than they were a few months back, but the number of new orders coming in is about the same as it has been for many months back, with no indication of a falling off.

The local machinery dealers say that their business in the aggregate is very satisfactory, but it appears that they are not closing as many large orders or securing contracts for complete equipments as they have in times past. It is said that one of the leading manufacturers of machine tools is pushing this territory harder than ever before and is corralling the big orders regardless of price or variety of machine desired. It is claimed that even goods handled by the dealers are contracted for when necessary and delivered no one knows how. One or two dealers state that they have received notice of increases in prices of from 5 to 10 per cent. on certain lines of lathes, planers and other tools. The advance is not general, however. As a rule deliveries are more prompt than they were a few months back.

The Alliance Machine Company of Alliance, who were incorporated some time ago with $200,000 capital stock to manufacture special machinery and cranes, have organized with W. C. Whitehead, Cleveland, president; W. H. Purcell, secretary and general manager, and H. S. Milburn, treasurer. The above, with Judge Stevenson Burke, Norton T. Horr, G. W. Shem and W. J. Finnerty, are directors. Mr. Purcell, the general manager of the company, has had long experience in the practical and business ends of the enterprise, having been for a number of years general manager of the Morgan Engineering Company of Alliance. The main shop of the plant, 300 x 120 feet, is under way, and will be placed in operation in about 60 days. The company have had work offered, and have taken contracts sufficient to keep this shop busy day and night for the balance of the year. It is the intention to build, as soon as possible, another shop of the same size to be used as a machine shop. A large foundry will be built later in the year, and probably another erecting shop. The larger portion of the machinery equipment is to be furnished by the Niles-Bement-Pond Company.

The Cleveland Punch & Shear Works Company are furnishing one 36-inch punch and one 26-inch punch to the Wellman-Seaver-Morgan Engineering Company for their new plant; one 36-inch punch to the McClintock-Marshall Construction Company, Rankin, Pa.; one 19-inch punch and one 20-inch horizontal punch to the Mt. Vernon Bridge Company, Mt. Vernon, Ohio. They are mailing 10,000 copies of a very handsome catalogue illustrating and describing over 100 types of large tools which they have built during the past two years.

Some very good contracts in boiler and engine equipment are pending, or have recently been closed, for plants in this city. The Cleveland Electric Illuminating Company will install 2000 horse-power of Sterling boilers, and are figuring on another installation of the same size. The Cleveland Frog & Crossing Company have placed an order with the Aultman-Taylor Company for 1000 horse-power Cahall boilers for their new power house, soon to be erected. The Bishop & Babcock Company are figuring on putting up a new direct connected power plant of about 500 horse-power capacity. The W. S. Tyler Wire Company, who have recently built a new power house, are figuring on tearing out all their old boilers and installing about 500 horse-power. The Cleveland Hardware Company are figuring on a very similar proposition. An engine boiler and generator will be required for a new power block to be erected for J. V. N. Yates. Watterson & Clague have the general contract.

The Webster, Camp & Lane Company of Akron have placed contracts for a good sized lot of large tools. The Niles Tool Works Company secured the major portion of the contract, and the Marshall & Huschart Machinery Company will furnish a number of tools, including a large Bullard boring mill and a Gould & Eberhardt gear cutter.

The Brown-Cochran Company of Lorain, who are building a large factory, have placed an order with Marshall & Huschart Machinery Company for a semi-automatic chucking lathe of large size.

The Lucas Machine Tool Company have commenced work on their new factory, which is to be located at Glenville, 5 miles from the city, on the L. S. & M. S. Railway. The main building will be 40 x 150 feet, and it will enable the company to extend the line of special machine tools which they have been building on a small scale during the past year. They have not yet purchased their machine tool or power equipment.

The removal of the above concern, as well as several others whose plans are not yet announced, is necessitated through the purchase by the National Electric Lamp Company of the immense plant formerly occupied by the Brush Electric Company. Since the absorbtion of the latter concern by the General Electric Company several years ago the Brush plant has been occupied by about 20 manufacturing concerns more or less identified with the steel and machinery trades; among them the Winton Motor Carriage Company, Han-

sen Automobile Company, Cleveland Ball & Screw Company, Victor Electric Company, Kilby Mfg. Company (branch shop), Lucas Machine Tool Company, Wright Mfg. Company and the Cleveland Color Company. All of these concerns have been asked to move as soon as their leases expire, and the change will add considerable impetus to the building of factories in this city. It is stated that the National Electric Lamp Company will concentrate several of their plants here, and will make important changes to the Brush plant.

The plant of the Danielson Machine Tool Company has been bought in at sheriff's sale by Walter N. Crafts, secretary of the old company. The company manufactured presses and stamping machinery, and the shop equipment sold for a very low price. It is Mr. Crafts' intention to reorganize the company under another name, and there is a possibility that he may decide to remove the business to some other city.

The new plant of the Chicago & Cleveland Car Roofing Company has been placed in operation. The main structure is 70 x 240 feet, the engine room 50 x 75 feet and the boiler room 20 x 40 feet. The plant was opened with a banquet to employees and officials a few evenings ago.

The Johnson & Jennings Company will erect a pattern shop in addition to the new plant now under construction. Plans were prepared by Kaltenbach & Griess, engineers.

The C. O. Bartlett & Snow Company, manufacturers of hoisting machinery, who are preparing to move into a larger plant, have decided to erect an addition about 200 x 40 feet. New machinery and power equipment will be installed.

The Acme Machinery Company have had plans completed for a new factory building, 60 x 180 feet, one story in rear and four stories in front. The front, facing on St. Clair street, will be utilized for offices, drafting rooms, &c., and the present offices will be used for manufacturing purposes. The new shop will be a general machine shop, and will be covered by a 25-ton electric crane, to be built by the Brown Hoisting Machinery Company. The Acme Company are building complete equipments of nut and bolt machinery for several plants now under construction in various parts of the country, and are shipping a complete plant to Glasgow, Scotland. Another is under construction for a German concern. They are building a number of very large tools at present, among them a 35-ton steel forging machine for the Cambria Steel Company, Johnstown, Pa.

The Frost Wire Fence Company are furnishing a complete equipment of wire fence machinery to the Western Supply Company of San Francisco; also dies and special machinery for other manufacturers. In their own plant they are installing a number of new machines for the production of spiral coil wire fence, for which they are experiencing an unusual demand. Among other large contracts they are furnishing the Pennsylvania Railway with 100 miles of fencing.

The Chisholm & Moore Mfg. Company are building an addition, 63 x 100 feet, to their malleable iron foundry, in which department they are nearly three months behind on orders. They are also considerably behind in the chain hoist department. They are building a 50-ton chain hoist for a Chicago factory.

The Warren Electric Company of Sandusky, Ohio, are preparing to erect an addition, 40 x 100 feet, for the production of motors. A crane will be installed, and considerable new machinery is being purchased.

The Columbus Elevator & Iron Company have been incorporated at Columbus with $10,000 capital stock. A shop has been opened at 180 West Broad street, and machinery is being ordered for the manufacture of elevators.

The Zanesville Malleable Iron Works Company of Zanesville have been incorporated with $50,000 capital stock by R. H. Frees, J. D. Buman, S. H. England, M. M. Granger and S. M. Granger.

The Faultless Rubber Company of Akron will erect a four-story addition, 50 x 120 feet. They will also build a boiler house and install new boilers.

The Pilsener Brewing Company of Cleveland will install refrigerating machinery and new boilers in an addition, 50 x 100 feet, to be erected. Mueller & Mildner of Detroit are preparing plans.

The J. C. McNeil Boiler Works Company of Akron have been reorganized and chartered under the laws of West Virginia with $250,000 capital stock. Extensive improvements and addition will be made to the plant. J. B. Campbell, formerly receiver, is general manager of the new company.

The Star Drilling Machine Company of Akron will erect three additions adjoining their plant. Their business has increased rapidly of late.

The Arbuckle-Ryan Company of Toledo have taken the contract to furnish the steam portion of the power plant of the Grand Rapids & Flint Traction Company. The same company will furnish a 2000 horse-power steam plant for the Great Northern Portland Cement Company of Baldwin, Mich., and a 1200 horse-power steam plant for the Detroit Portland Cement Company, Detroit. A large steam plant will also be supplied by the Penberthy Injector Company of Detroit.

Chicago Machinery Market.

CHICAGO, ILL., April 26, 1902.

Manufacturers of machine tools in the Northwest during the month of April have continued not only busy, but rushed. There have been possibly fewer very large contracts placed, but the aggregate volume of business has been equally as heavy as during the preceding months of this year and in some special cases contracts have been very much larger, while compared with the corresponding period a year ago the gain in business has been phenomenal ranging from two to four and even five times larger. Not a few manufacturers have extended their plants, but notwithstanding the increased facilities there has been much difficulty in getting out work on contract time. Orders continue to flow in from agents apparently without effort, many orders coming through the mail without assistance from salesmen. Manufacturers are still experiencing difficulty in obtaining an adequate amount of skilled labor and are much annoyed, if not seriously inconvenienced, by the delay in obtaining material, whether it be fittings, castings or pig iron. Inquiries for future business are continuous and urgent and in many cases manufacturers are turning down orders because of inability to furnish machines in reasonable time. Some manufacturers have sold actually much of their capacity for 15 months.

But heavy orders are not confined to machine tools; there is an active demand for elevating and conveying machinery, power transmitting appliances, shaftings, pulleys, hangers, &c. It is notable that domestic orders have been received from a much wider area and also that there has been an increase in the number, if not the size, of the contracts received from abroad. It is worthy of note, too, that the orders are not only coming from the iron and steel industry, such as iron and steel mills, machine shops and foundries, but such industries as glass factories, cement works, smelters, steam and electrical railways, cotton warehouses, &c., are in the market with urgent orders.

Local agents for manufacturers in both the East and West report an active demand for machine tools from stock and those who are fortunate enough to have machines on hand are reaping the benefit, having no difficulty in obtaining orders at full prices wherever it is possible to make quick shipments. While the bulk of orders received in this market come from the South and West they are well distributed. A number of small orders have recently been received from California, Utah, Nebraska, Arkansas and Texas, as well as from the Northwest.

The demand for boilers, engines and pumps has been especially active and some of the largest orders of the year have been placed during the month of April. The aggregate number of small orders has swelled the total volume of business very materially. Among the buyers of boilers and engines have been railroad companies,

beet sugar factories, mills, chemical factories and iron works.

The demand for second-hand engines, boilers and pumps, especially the latter, has been so great that stocks have been inadequate, second-hand material in many cases commanding as high prices as the new product. The volume of business in pumps alone has been fully one-third larger than at the corresponding time a year ago. The inquiries received from all sections indicate that the end of the buying movement is not in sight. The outlook for the future could scarcely be more encouraging. While there has continued to be a good demand for large engines and other machinery specially adapted to heavy work, the demand for medium sized engines, both gas and gasoline, has increased and is of a more general character.

While the tendency has been toward higher prices for machinery, engines and boilers, because of the increased cost of raw material, as well as the advance in wages, not a few manufacturers call attention to the fact that they have not advanced prices on their special makes. It is evident, however, that should present conditions continue manufacturers will be forced by self protection to ask higher prices.

Machine Tools.

McDowell, Stocker & Co., 59 and 61 South Canal street, Chicago, have been receiving a number of satisfactory orders for machine tools from the Southwest. Orders of moment have also been received from the Northwest. These sales have included both new and second-hand tools. The local demand for second-hand tools has continued very satisfactory.

Manning, Maxwell & Moore, 36 to 40 South Canal street, Chicago, have continued to experience a good demand for various machine tools, a number of shipments being made direct from local stock. Most of the manufacturers they represent are still unavoidably behind in making shipments on old contracts. Fewer large contracts have been placed during the month of April, but the aggregate volume of business, while scarcely equal to that of March in dollars and cents, has been equal, if not larger, in volume.

Hill, Clarke & Co., 12 and 14 South Canal street, Chicago, have booked a number of small orders for machine tools during the month, which in the aggregate have been very satisfactory. Shipments have been made to California, Utah, Nebraska and a more recent shipment to Arkansas.

The Milwaukee Machine Tool Company, Milwaukee, Wis., who have recently equipped an entirely new plant for the manufacture of a turret lathe of new design, have their works in active operation and expect to complete their first lot of turret lathes by May 10. They have a surplus of orders, being sold ahead for the next six months. This is a most encouraging beginning for a new enterprise.

The Kempsmith Mfg. Company, Milwaukee, Wis., say that since the middle of January they have been in receipt of an extraordinary demand for milling machines. January 1 they had practically caught up with orders, but the influx since that time has put them behind several months. The demand also has been of diversified character, orders affecting practically the entire line, from the smallest up to the largest tool. From inquiries being received daily they have reason to expect a continuance of the buying movement.

The New Doty Mfg. Company, Janesville, Wis., never experienced a better trade than at present. They have orders on their books for a large amount of business in punches, shears and rolls, all that they can do for some months ahead. Inquiries are numerous and there is every indication of a continued good business for the balance of the year or even longer. The only trouble is to get out goods soon enough to please customers. They are about to begin work on some extensions to their plant, a pattern storage room, 30 x 70 feet, three stories high, a new pattern shop and an extension to their machine shop of about 60 x 70 feet. They will also add some new large tools.

The Ransom Mfg. Company, Oshkosh, Wis., say business during the past month has been good. They have experienced some difficulty in obtaining prompt shipments of castings, having no foundry of their own. Trade on their electrically driven water tool grinder, which was recently placed upon the market, has been better than they had anticipated and during the past few months they have received considerable trade from Southern States on small grinders. They have booked quite a number of orders for disk grinders and have on hand at the present time more inquiries for various kinds of machinery than they have had for some time. They regard the business outlook for the near future as very promising.

Engines and Boilers.

The Allis-Chalmers Company, Chicago, report all branches of their business very active. The demand for large engines is especially noteworthy, having been heavier during the past month than at any time in their experience. Their output in this line is only limited by the facilities at their command. Among the most important engine orders recently received for their Allis Works at Milwaukee are orders from the Dow Chemical Company, Midland, Mich., and the Illinois Steel Company, for their Joliet Works, for 2000 and 4500 horsepower respectively. Each of these engines is of the compound vertical and horizontal type with the high pressure cylinder horizontal and the low pressure cylinder in a vertical position. Jones & Laughlins, Limited, Pittsburgh, have also placed an order for a 1500 horsepower vertical cross compound direct coupled engine, which is a duplicate of one now under construction for that company. The pressure for large units for power stations has been increasing instead of diminishing. The same condition of affairs is observed in the crusher and cement machinery departments. Orders for cement machinery the past month have exceeded anything heretofore experienced in the same time. The demand for mining machinery is keeping up to its record. The company are among the heaviest builders of beet sugar machinery in the country at their plant at Scranton, Pa. They have booked very large orders in this line in April. The construction of their new shops at West Allis, Wis., is being pushed night and day to help out the crush of business.

The Strang Engine Company, whose main office is at 140 Dearborn street, Chicago, have bought the old Hercules steel plant at Harvey, Ill. This plant consists of a substantial structure in good condition with 3½ acres of land. The main building is three stories high, with two one-story wings, and is well adapted for the purpose for which it has been purchased. The first floor will be used for a machine shop, the second for lighter work and the third for a pattern shop. The company will use the power plant purchased with the property and are now installing a complete equipment of machine tools. They will make a specialty of the new Strang oil motor and will first build small sizes from 2½ to 6 horse-power, but will later build larger sizes. They intend at some time in the future to add the manufacture of a new double acting gas and gasoline engine of all powers. They expect to begin to turn out engines the latter part of May.

The Nordberg Mfg. Company, Milwaukee, Wis., say that inquiries for machinery are as frequent as and more urgent than they have been. During the last two weeks they have had occasion to decline business amounting to many thousands of dollars for the only reason that they could make no shipment in less than 15 months. The price asked for machinery seems to cut but little figure with the intending purchaser, delivery being the all important point. Their new factory is scarcely completed. It was supposed to be ample in all departments for their needs for years to come, but they now find that enough business could be had, even without salesmen, for twice the capacity at their command.

The Charter Gas Engine Company, Sterling, Ill., have experienced a very favorable trade indeed during the month of April. Carload orders and others have kept them busy and they will continue busy for quite a while in the future without another order coming in. Their capacity is unequal to the demand, although they have

been running day and night and plans are being made now to enlarge their plant; a new foundry and other buildings will be erected.

A. L. Dawson & Co., 27 and 31 West Washington street, Chicago, have experienced a satisfactory trade during the month in engines, boilers and pumps.

The Marinette Iron Works Mfg. Company, Marinette, Wis., have decided to increase their capital stock from $200,000 to $500,000 for the purpose of enlarging their business. It is their intention to greatly increase their plant and possibly to double its capacity. The company are booking numerous orders for gas engines and in some instances have received single orders calling for 20 or more engines. They recently completed an engine for Portugal.

The S. Freeman & Sons Mfg. Company, Racine, Wis., are very busy in their boiler shop, having all that they can possibly do for the next 60 days. They have lately closed with the Union Pacific Railroad Company for six 250 horse-power internally fired corrugated furnace boilers, five 150 horse-power horizontal tubulars for the Oregon Short Line, eight 150 horse-power horizontal tubulars for the Oxnard Construction Company for a beet sugar factory and a large number of other orders for both internally fired and horizontal tubular boilers. They have just installed a Universal flanging press, on which can be flanged heads of any diameter, another 9-foot hydraulic riveter, virtually doubling the capacity of their plant. They anticipate an excellent business throughout the year.

H. C. Doman, proprietor of the Union Iron Works, Oshkosh, Wis., is erecting a plant for boat building and will install tools for the manufacture of gasoline engines to be used in equipping the boats. It is his intention to build gasoline launches from 20 to 75 feet in length, having engines of 2 to 50 horse-power.

E. O. Williams, 63 South Canal street, Chicago, has found more difficulty in obtaining material than in securing orders. He has made some satisfactory shipments, however, of second-hand boilers, engines and pumps recently to the South and he has noted a specially heavy demand for ice making machinery, some important shipments having been made to Texas recently.

The Union Steam Pump Company, Battle Creek, Mich., say that the machinery trade is good. Their business in the past five months has been about one-third larger than it was the same time a year ago.

Cranes and Power Transmitting Machinery.

Pawling & Harnischfeger, Milwaukee, Wis., have found business conditions during April satisfactory in every way. Their orders show an increase in volume, but basing the business from the first of the year there is a noticeable widening in the area from which orders are received and possibly a demand that would average slightly less in capacity per crane than heretofore. The iron and steel mills, machine shops, foundries and kindred lines still take the larger part of their product, but other notable industries, such as glass factories, cement works, smelters, steam and electric railways, cotton warehouses, &c., are placing orders and asking for quotations. This firm has lately found it imperative to increase their plant and recently secured the building at 187 to 191 South Water street, which has been equipped as a machine shop and also is used as an erecting shop for the smaller sizes of cranes. A warehouse and land on the Chicago & Northwestern tracks on the east side of Clinton street have lately been bought and are now being used for the storage of shafting, blank wheels and heavy stock. The new office building of two stories and basement, 50 x 50 feet, which was first occupied in October, is already proving inadequate. Among the larger tools recently purchased are a special boring mill, special lathes, shafting grinders, &c. With the latter machines all shafting is ground to gauge and permits them to follow their policy of giving as close exactness to their cranes and hoists as would be given to machine tools. They state their present facilities permit them to turn out a complete crane every 24 hours. The representative firms from which Pawling & Harnischfeger have lately booked orders are partly given as follows: Allis-Chalmers Company, Milwaukee and Chicago; Colorado Fuel & Iron Company, Bessemer, Col.; Norton Emery Wheel Company, Worcester, Mass.; Lackawanna Iron & Steel Company, Buffalo, N. Y.; Midvale Steel Company, Philadelphia; Follansbee Brothers Company, Pittsburgh; The Vulcan Works, Chester, Pa.; Northern Central Railway, York, Pa.; The Standard Steel Works, Burnham, Pa.; American Sheet Steel Company, Wellsville, Ohio; The Trenton Iron Company, Trenton, N. J.; Best Mfg. Company, Pittsburgh; Fairbanks, Morse & Co., Beloit, Wis.; McClintic-Marshall Construction Company, Pittsburgh; Kurztown Foundry & Machine Company, Philadelphia.

The Stephens-Adamson Mfg. Company, Aurora, Ill., say that their shop is very full of work. Their facilities have been taxed to the limit. The character of the work is entirely elevating and conveying machinery and power transmitting appliances, shafting, pulleys, hangers, &c., contracts for which have been taken in different parts of the country. They have lately installed a 40-foot traveling crane, which aids materially in handling heavy work. It is not a lack of work, but how to get it out promptly during the next six months that is the problem to solve.

The Speed Changing Pulley Company, Indianapolis, Ind., advise us that reports recently published to the effect that the company intended to remove to Chicago are incorrect. They do not intend to remove their plant from Indianapolis.

Tools and Supplies.

Joseph T. Ryerson & Son, with offices at 18 and 22 Milwaukee avenue, and warehouses at 39 to 53 North Clinton street and 46 to 58 West Lake street, Chicago, have found the machinery market during the month of April in a most healthful condition. The demand has been extremely active and sales for the month have been more than three times those of March. Belated purchasers will find more and more difficulty in securing shipment for this season's work, as deliveries are becoming more and more remote from day to day. The last week of the month has been especially prolific of important contracts. Among the large sales for April have been those made to the following: Wm. Cramp Ship Building Company, Baldwin Locomotive Works, Carnegie Steel Company, Standard Oil Company, Holthoff Machinery Company, Railway Supply Foundry Company, Henry Goldner, Grohl Peterson & Co., Marine Boiler Works, Springfield Boiler & Mfg. Company, Morova Construction Company, J. I. Case Threshing Machine Company, Fosston Wind Stacker Company, Vulcan Iron Works, Ames Iron Works, Clark Engine & Boiler Company.

Charles A. Besly & Co., 10 North Canal street, Chicago, are receiving large orders from all over this country for the Badger and Bonanza grease cups and they have just made shipment of a large order of Badger die stocks to South America. This order was received some months since, but it was impossible to complete it because of the difficulty in obtaining a sufficient amount of malleable iron. The new Helmet temper tap which they recently introduced to the trade has been well received, as is attested by large orders received from time to time. The popularity of the Gardner grinders seems to increase with time, a large business being done and orders well distributed. One carload has recently been shipped to the Pacific Coast and the manufacturers are compelled to work their force at night to keep up with the contracts. They now have in preparation a new form of Gardner grinder which they believe will meet with instantaneous success. Not content with the domestic trade, however, the firm have a representative traveling around the world, his progress being punctuated by orders of moment from various points. The last contract received was for Gardner grinders for shipment to Bombay, India.

The Chicago House Wrecking Company, Thirty-fifth and Iron streets, Chicago, have continued to experience an active call for heavy engines, some important sales of Corliss engines having been made in the past week. The demand for pumps has also continued very active and the supply of second-hand material from stock being inadequate a number of new pumps have been placed. The same is true of medium and small sized engines. There have been especially urgent inquiries for ice machines recently and sales of importance have been

made for shipment to Kansas, Oklahoma, Texas, North and South Carolina. The call for machines from the latter two States have been especially urgent. There has been less demand for mill machinery, but one large locomotive traveling crane has just been shipped to a foundry at Milwaukee. They have on the market at the present time a specially desirable dredging outfit complete. The new machine shop which they will erect very shortly is to be 650 feet long, 75 feet wide and 61 feet high. The building will be entirely of steel and iron with concrete floor; tracks running through the center of the building and raised platforms on each side. The shop will be equipped with traveling cranes and the most improved machine tools; they are now in the market for this equipment. A boiler shop will also be erected adjoining the machine building. On May 1 the company will break ground for their new office building, which will have a frontage of 50 feet and will cost $25,000. The new house of the company at Buffalo, N. Y., from which all Eastern business is being handled, is under the management of Frank Harris.

Henry E. Pridmore, Nineteenth and Rockwell streets, Chicago, has transacted a large volume of business during the month of April. In fact, April has been one of the busiest, if not the most active, month, not only of the year, but of the entire history of the foundry. A number of important orders for machines for railroad work, including brake shoes, oil boxes and general brasses, have been placed. Two especially large orders have been taken for moldings for sewing machine castings. The sale of letter presses abroad has continued very satisfactory, several important shipments having recently been made to European countries and additional orders received from the foreign representative during the month. Work has already begun in the new machine shop, but the installation of equipment is not yet complete. The new office building which is now occupied is a model of neatness, well lighted and is equipped in the most modern style.

The S. Obermayer Company, Rockwell and Nineteenth streets, Chicago, have been so crowded with rush orders during the past month that they have been obliged to make partial shipments only on contracts. New orders for all kinds of foundry supplies are flowing in daily and most of them demand prompt shipment, which it is almost impossible to give.

The Stover Mfg. Company, Freeport, Ill., are not branching out to any extent for new business, as they are now so rushed with orders coming from their regular trade that no room is left for expansion. They are now occupying their new factory, which gives them more than double the capacity of the old one, yet the demand seems to have increased in proportion to increased facilities and they are as badly off to-day as a year ago, although they are making more than twice as many machines.

The Manistee Iron Works Company, Manistee, Mich., say their business for the current month is about up to the regular standard for April. They have made no large contracts during April, but the future looks very promising.

The D. Clint Prescott Company, Menominee, Mich., have a full complement of orders, including many large contracts, which will last them for many months ahead.

The Anderson Tool Company, Anderson, Ind., are closed down preparatory to moving into their new plant, but will resume operations probably in about three weeks.

The Novelty Iron Works, Dubuque, Iowa, have had a trade in the trip hammer department of greater volume than they could possibly take care of during the last two months, orders having been received principally from Eastern, Western and Southern States. The difficulty of obtaining additional skilled help, together with delayed deliveries of special parts purchased for these machines, has also caused considerable trouble in filling orders promptly. Although material is advancing rapidly, as yet no change in prices of these machines has been made. Orders are now being received for shingle machines to be shipped principally to Southern and Pacific Coast States. They report a very flattering trade in all lines and do not look for any falling off of orders for some time to come.

The Industrial Works, Bay City, Mich., are receiving a satisfactory demand for machinery and are running comfortably full with orders.

The Hoefer Mfg. Company, Freeport, Ill., say that their business continues with usual increase and the future is very encouraging.

The Modern Steel Structural Company, Waukesha, Wis., have begun work on an addition to their plant. The new building will be of brick with steel frame work 160 feet square. The company have built up a large business in steel bridges.

The Stenhouse Metallic Works Company, Limited, have been organized at Grand Rapids, Mich., with a capital stock of $250,000 for the manufacture of metal beds. The company will at first purchase the parts from other manufacturers and will assemble them in their own factory, but eventually it is their intention to erect a foundry and machine shop. George T. Stenhouse, the inventor of a patent bed, will be general superintendent. George E. Howes is president, August Kapp treasurer, Samuel H. Howes secretary and Martin E. Brown manager.

A New Bessemer Steel Plant.

(By Telegraph.)

PITTSBURGH, PA., April 30, 1902.—The St. Clair Steel Company of Pittsburgh, who are building an open hearth works at Clairton, Pa., have decided to add a Bessemer mill to the plant to contain two 10-ton vessels. The works are equipped with a 40-inch blooming mill on which the ingots will be cogged down to 8 x 6 inches and will then be rolled into small billets on two auxiliary mills. The open hearth works will contain 12 50-ton furnaces, and this part of the plant is pretty well along. It is expected to start four of the open hearths in July and the other eight in September or October. The St. Clair Steel Company will turn out, when the Bessemer and open hearth works are finished, about 1000 tons of open hearth and 2000 tons of Bessemer steel per day. It is possible that one of the three blast furnaces being built by the St. Clair Furnace Company at Clairton and which is an identified interest of the St. Clair Steel Company, will be ready for operation the latter part of this year. The other two furnaces will hardly get started before next year.

PERSONALS.

Andrew Carnegie sailed for England on Wednesday by the American Line steamer "St. Louis."

E. L. McGary, consulting engineer, Westinghouse Building, Pittsburgh, has been appointed consulting engineer for the Crucible Steel Company of America.

George Westinghouse was a passenger by the "St. Louis," which sailed from New York for Southampton on Wednesday.

George Whiting, who has been long associated with the Scully Steel & Iron Company of Chicago, has resigned to engage in business for himself under the firm name of Geo. Whiting Company, 428 to 448 North Halsted street, Chicago, Ill., for the manufacture of all kinds of punching and shearing machines and bending rolls.

H. R. Lasch, manager of Selig, Sonnenthal & Co., London, England, has recently paid a visit to this country, and reports satisfactory business conditions as far as his house is concerned. They still sell considerable quantities of American machine tools in spite of the recent depression, and Mr. Lasch expects a general improvement shortly.

The machinists of the Henry R. Worthington branches of the International Steam Pump Company, at Brooklyn, N. Y., and Elizabethport, N. J., enter upon a 9-hour scale to-day. The wages per hour have not been changed. The shops formerly worked 57½ hours per week, and will hereafter work but 54. The company pay by the hour.

HARDWARE.

AS a general rule it is true that the larger houses are characterized by better business methods than the smaller houses, and this fact doubtless accounts in good measure for their larger trade. There are, indeed, instances of large and successful concerns in which there is much to criticise in the way in which the business is conducted. In spite, however, of such defects, by means of energy and sagacity or other admirable features of management an extensive and profitable trade is secured. This is illustrated in the case of some manufacturers and jobbers occupying a conspicuous position in the trade. As a general thing, however, the large house is efficiently managed and has business methods which contribute directly in a marked way to its success, and the smaller houses, whether engaged in the production or distribution of goods, can nearly always learn something from those who are leaders in the field. The wise merchant or manufacturer is not only alert in keeping in touch with the general course of things in the business world, but has his eyes open to observe the lines in which other houses, especially those with which he has to do, are working, that he may take advantage of anything admirable in their plans, and thus avail himself of the benefit of their example and experience.

The retail Hardware merchant has to do with manufacturers and jobbers, from whom he can learn much. Their business methods as a rule are good and deserve his study. They will probably suggest something which can be advantageously done by him in his more limited field. The spirit of energy and enterprise manifested by the growing house should certainly be stimulating to the smaller merchant. The constant endeavor on the part of the representative manufacturer and jobber to extend his business has had a great deal to do with the progress which has been made and the position which has been achieved by those great classes of the trade. How to accomplish this has been a question to which unrelaxing consideration has been given. Whether engaged in making or in selling goods the aim from year to year has been to increase the business. To this end increased facilities have been added, new lines have been taken up, new channels of distribution opened and more aggressive methods pursued. The retail merchant who has made anything of a place for himself in the community has usually something of this spirit, but in many merchants it is sadly lacking. They are content to follow along on the old lines—it should rather be said, in the old rut. If they feel to any extent the influence of the more pushing, enterprising, aggressive trade methods which are current in these days of intense commercial activity, they respond to them in only a passive and half-hearted way. They fail to recognize in these influences and tendencies the secret of success for them, if they are only awake to their opportunities and apply these principles and methods to their own business.

One respect in which the retail merchant should feel the influence of the example set by the manufacturers and jobbers is in regard to increasing the lines of goods handled. The representative manufacturer is constantly increasing his lines, and the same is true in perhaps a larger degree of the jobber. This should certainly be the policy of the retail merchant. With the extraordinary increase in the number and variety of articles manufactured for public consumption there are a large proportion which come properly within the legitimate field of the Hardwareman. His store should be the place where his customers can find goods which are in harmony with a Hardware stock. Any Hardware store which carries practically what it did 20 years ago and has not enriched its assortment with new goods and new lines has failed to keep step with the progress of the times and has missed opportunities for profitable trade.

It is a significant fact that almost all the successful jobbing houses started out as retail merchants. Little by little they enlarged their trade until they came to occupy an important and honorable position among the larger distributers of Hardware. This began by the cultivation of the trade which lay at their doors. Only very gradually did they work into a wholesale business. They found, however, what has been the general experience of the trade, that with a well appointed stock and good energetic methods they were in a better position than larger houses at a distance to take care of the factory and cross road trade and others in their immediate vicinity who buy in small lots but in larger than mere retail quantities. The cultivation of this class of trade called for a man whose time at first was only partially taken up by such outside work. From this beginning there was a progress more or less steady and sure. The result was that they soon had recognition as small jobbers, a type of merchant which has a most useful place in the trade. Similar opportunities are awaiting those who have the sagacity to recognize them and the business ability and energy to improve them.

Condition of Trade.

This is with the merchants throughout the country a very busy season, and the reports which come from the larger and the smaller houses indicate a very satisfactory condition of business. Stocks generally are well assorted except in the lines in which difficulty in getting goods is experienced. The policy of the trade is evidently to keep assortments up to a good working level. Jobbers and manufacturers accordingly find many orders coming in to them, not a few of which are coupled with the request that immediate shipment be made. Manufacturers for the most part have difficulty in getting out goods as fast as they are desired. This is particularly on account of delay in getting the material. The insufficiency of transportation facilities on the railroals also has some influence. With the great activity which prevails in nearly all factories, labor is not only fully employed, but scarce, and wages are gradually creeping up. The new business coming in from the larger trade is in fair, but not especially heavy, volume. The subject of jobbing consolidation continues to be discussed by all classes who are desirous of knowing what its effect will be on their interests. Further announcement of the progress toward the final consummation of the consolidation is awaited with much interest. The element of uncertainty in regard to the effect of this movement has undoubtedly some influence on current business, tending as it does to restrain orders from those who are intending to be identified with the aggregation and inducing a conservative disposition on the part of those who consider the possibility that they will be unfavorably affected by it. Prices generally are very firm. Several advances are to be noted. Rumors of consolidation of some manufacturing interests are current, but nothing definite is reported in this direction. Export business has undoubtedly suffered somewhat in view of the long continued heavy home demand, as manufac-

turers too frequently unwisely neglect foreign business at such times, thus relaxing to some extent their hold on foreign markets. Notwithstanding this the amount of Hardware and kindred lines going abroad is steadily increasing.

Chicago.

(By Telegraph.)

There is no diminution in the activity previously noted, both manufacturers and jobbers being overwhelmed with orders, the difficulty still being in making shipments promptly. The demand for Carpenters' Tools is especially active. The market on these lines is especially firm in view of the manufacturers' advance on Chisels and Draw Knives. The orders for Locks and Builders' Hardware have been especially heavy, some jobbers having sold in the past two months more than they had previously disposed of in 12 months, the remodeling and refitting of buildings incidental to this moving season of the year being credited with much of this increase in business. The scramble for Wire Cloth continues, the demand being accelerated by an advance of 5 to 10 cents per 100 square feet, although some few jobbers are still selling at the old price of $1.10. Quotations are now $1.10 to $1.20. Orders for Shovels and Spades have continued liberal, and Farming Implements of all kinds have sold readily at full prices. Scythes are especially scarce and wanted. Orders continue to be well distributed. The volume of business for Iron and Steel is restricted only by the moderate offerings.

St. Louis.

(By Telegraph.)

Business in the Hardware market the past week makes a very good record and with some jobbers the total of the orders for different days establishes a new record. In view of the fact that business in some of the counties most severely affected by the drought of last year has been necessarily curtailed, the increased buying from other quarters was ample enough to cover the deficiency. While with some houses the volume of demand and inquiry is said to be slightly smaller at the present time, yet no complaints can very well be expressed. The conditions, especially in the Southwest, favor an enlarging of the demands on the jobber, and it seems to be the policy of the leading houses to make a strong bid for the trade in this promising territory. In order to take full advantage of the new opportunities one of the leading houses here is now on the lookout for several bright and enterprising salesmen. The heavy department continues to care for a volume of demand that is pronounced to be very fair.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade during the past week has been very active in the wholesale houses of our city. The activity possibly exceeds that of one year ago.

The demand for season goods is certainly far in excess of one year ago. The greatest trouble jobbers have on season leading goods is the difficulty in filling their orders. Manufacturers have been so far behind that it has caused great complaint as well as inconvenience on the part of many of the retail merchants. Nothing is more unpleasant to the average jobber than to have goods left out of the first shipment and delayed until a later shipment, especially when the season is so far advanced that persons need these goods at once, and the average retail merchant cannot understand the cause of this delay. It is a difficult matter to explain to them in a satisfactory manner, and as the season advances the complaint is greater.

Jobbers have, in self defense, been compelled to advance prices on Poultry Netting and Green Wire Cloth. The scarcity of these goods, especially the latter, has be c me quite manifest.

The sale of Lawn Mowers has far exceeded any previous year, and orders for shipment have been delayed beyond actual requirements. It is evident that some manufacturers of high-grade goods will not be up even with their orders during the season, much to their regret as well as to that of their customers.

Collections continue fair.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—With Bureau of Statistics showing that exports have decreased $59,000,000, and imports increased $79,000,000, for eight months ending April 1, and conditions prevailing that will probably make a still more unsatisfactory showing for balance of fiscal year, it is proper at this time to forecast the future. Are we not now unconsciously whirling around the outside of that whirlpool, as we were in 1892, that engulfed us in the vortex in 1893? As at that time, we have had a boom in our business, and far more profitable to us than then. The stock market has given us a pyrotechnical display such as the world has never seen. The sky rockets have mounted higher and the Roman candles have been more beautiful and plentiful, in shape of stock certificates, than ever before. Finally we are up to the last act that has always preceded the ringing down of the curtain. Real estate is having its inning, and the building boom has been on for three years. Money is being drawn from savings banks for investment. Some day the master mind, Rockefeller or Morgan, will shuffle off; distrust will set in as it did in 1893 when Baring Bros. were snuffed out; depositors will want their money, to find the 90-day clause operative, funds having been loaned on high priced real estate, stocks and bonds and not come-at-able. The grand finale will be the same darkness that always follows a great illumination, the panic that follows the boom, reaction that follows expansion, as inevitable as any law of nature.

For the credit of the wholesale Hardware trade, it is to be hoped they will be as well prepared for the shake up as in 1893, and no more failures follow in our calling than at that time.

The Pacific Northwest reports no change in present or future prospects. They are as bright as we could wish them.

Trade is good, and collections all that could be expected at this time of the year.

Baltimore.

CARLIN & FULTON.—The fine weather which we are now enjoying is an inspiration for all lines of industry, and the evidences of business activity are seen on all sides.

The great demand upon the manufacturers for goods has prevented any accumulation of stocks, and the market has undoubtedly been firmer than for several years, and never has there been such a shortage of seasonable goods and such slow deliveries.

Should during the coming summer crops be even only normal as to size and bring fair prices, the demand for goods next fall will undoubtedly be greater than ever. In our Southern market business during the last fall and winter was hampered by a short cotton crop, and the purchasing power of that section was thereby greatly curtailed, but, in spite of that great disadvantage, we believe the average retailer has by rigid economy and careful management been able to come through his troubles with no increase of indebtedness and really in better shape than ever to replenish his now depleted stocks at the proper time.

It is to be hoped that labor will receive its proper share of the general business prosperity, and that a spirit of harmony will prevent any disagreements resulting in strikes and the consequent misfortunes. Then, with labor fully employed, manufacturers busy, and our agricultural industries prosperous, the country can look forward to continued prosperity and happiness.

St. Paul.

FARWELL, OZMUN, KIRK & CO.—There is little of general interest in the trade at present.

The weather has been very dry over a large part of the southern Northwest, but copious rains have fallen and the conditions are now quite favorable.

Trade has been heavier than in any preceding year, and the only unfavorable condition is the great difficulty in getting many lines of goods.

This feature has been relieved in a few lines to some extent, but in the great bulk of lines it is as difficult now to get shipments from the factories as it has been at any time in the past. It now appears that it will probably require some months longer to get things into even a fairly comfortable state.

With good crops relief will likely not come till end of the year.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY.—The general business situation remains fully as favorable as it was two weeks since, and it would be difficult to explain how the present trade outlook could be improved.

Merchants are placing good, liberal orders for present needs, and many are buying earlier than usual to cover their requirements for the last half of the year, which goes to show the confidence existing in future trade conditions.

Farmers are receiving exceptionally good prices for their productions. Labor of all kinds is well employed. Indications all point to a continuance of prosperity throughout this section of the country, and if we are favored with bountiful crops, as we have been for the past few years, there is no likelihood of any diminution in the volume of business this year at least.

Louisville.

W. B. BELKNAP & CO.—There is an active demand for material, which keeps both jobber and retailer busy at this time of the year. The flow of supplies is possibly better than it was but still not in excess, and the improvements projected both in the country and in the city are something very large and destined to take up the immense product of our factories running as they are at present.

Money is in good supply in Western centers, so that all legitimate enterprises may be well supplied and taken care of.

There is an evidence of the rather inflated conditions in that there are all sorts of schemes afloat for gathering in subscribers. Self-threading Needles, Furniture, Steel Castings, everything that the mind of man can devise almost, are being capitalized at what we should have regarded as extravagant figures a few years ago; but the public has got used to these, and it is presumed that such securities find favor somewhere, or they would not be so persistently hawked.

Seekers after the philosopher's stone are quite as numerous as ever, and the idea seems to prevail in some minds that there is some secret or trick of bookkeeping or financing in a large way that brings or manufactures profits for dividends whether they are actually made in the regular course of business or not. Of course, just how far this idea or craze will spread is a question. We know that for everything done out of the line of careful, conservative business there must be a day of reckoning sooner or later. At least, that is what history has taught us, if it has taught us anything. Of course, in the meantime, many fortunes may be made and safely stowed away before the injunction to come in out of the wet becomes the prevailing cry.

Meteorologically this would be wholly out of order here now. The season is backward, owing as much to the lack of rainfall in this part of the country as the cold weather. The drought promises to be serious unless speedily relieved. Pasturage was dried up before the spring juices began to move in the roots and much planting is yet to be done as soon as the ground is made moist enough for the seed to germinate once it is covered up.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—Trade continues to be remarkably good and orders are larger than usual and quite numerous. Sales for the month of April show an increase over last year. Especially heavy is the demand for seasonable and summer goods. During the past few weeks the sales of Wire Cloth, Screen Doors, Freezers, Refrigerators, and this class of Hardware have been very large and the jobbers are beginning to find their stocks of such things getting low.

A good many buyers are also placing orders for fall on such lines as Axes, Wood Heaters, Guns and Cutlery. Reports from the country around Nashville indicate that the crops will be better than was anticipated and the high prices will go a long way toward making up the shortage in quantity.

About the only bad feature we have to report is the strike in this city among some of the workmen and employees of the contractors and carpenters, but it is expected this will be settled in a few days.

Collections continue to be remarkably good.

Cleveland.

THE W. BINGHAM COMPANY.—There is no let up in the volume of business in this section; in fact, we are obliged to work overtime to keep up with the many orders that are coming to us through our salesmen and our mail order department. Whereas there seems to be some shortage among the manufacturers on all kinds of Tools and supplies, also house trimmings, yet we are able to serve our customers from this point reasonably promptly from our large and well assorted stock. There seems to be no diminution in the demand for spring goods, such as Wire Cloth, Netting, Lawn Mowers, Sheep Shears and the like. Railroad companies from this point are giving our jobbers and manufacturers very good service, and with the additional service that we are getting via the water routes from Cleveland we are in shape to serve our customers without much delay.

The demand for Hardware does not seem to run in any particular line, but it is coming in good volume for all kinds—that is, general Hardware, house trimmings, mining, milling and manufacturing supplies—showing plainly that the advance agent of prosperity is still abroad in the land. Customers are not afraid to buy often and freely, which indicates that they are not storing the goods on their shelves, but that the goods are being consumed. We feel as long as consumption of these lines of goods prevails there will be no trouble about jobbers all over the country receiving all the business they can take care of.

From the reports that you give us from time to time in your valuable paper from different sections of the country we can readily see that good times do not prevail in one section alone, but seem to be enjoyed all over our beloved and happy land.

New Orleans.

A. BALDWIN & CO.—Business is not quite as active as it has been the past three months and orders have fallen off considerably. With good crop conditions in the near future we expect to see considerable improvement, but just now it is quiet.

Prices are being maintained in a much better manner than they have been for some time. The general conditions indicate a very large volume of fall business.

NOTES ON PRICES.

Wire Nails.—Conditions in the Wire Nail market have undergone no change, unless it is that manufacturers are making shipments somewhat more promptly. The market is firm as the result of the high price and scarcity of Steel and the heavy demand for Nails. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots	$2.05
To jobbers in less than carload lots	2.10
To retailers in carload lots	2.10
To retailers in less than carload lots	2.20

New York.—The outlook for local business is satisfactory, with a fair demand for Wire Nails. Deferred shipments from mills make it difficult for jobbers in some instances to keep their stocks well assorted. The market is represented by the following quotations: Small lots from store, $2.30; carloads on dock, $2.18 to $2.20.

Chicago, by Telegraph.—The feature of the week has been the interest centered in the meeting of the independent manufacturers of Wire Nails, which was reported to have taken place at the Grand Pacific Hotel, this city, on Thursday last. The impression prevailed in trade circles that an advance was to be made in prices

of Wire Nails, but we understand no action of this kind was taken. A rumor was current that the feasibility of a consolidation of independent mills was considered. This report, while not verified, finds ready currency among the local trade. It is believed that another conference of the mills will be arranged for in May, at which further interesting developments are anticipated. The demand for Wire Nails has continued active, with supplies in hands of jobbers moderate and the mills away behind in making shipments on contracts. Small lots of Wire Nails from store are selling at $2.25 to $2 30 and single carloads at $2.20 spot.

St. Louis, by Telegraph.—The call for Wire Nails is good in volume, while in the matter of prices we note no change. Carload lots are quoted at $2.25 and small lots from store $2.30.

Pittsburgh.—A meeting of the Wire Nail mills was held in Chicago on Thursday, April 24, but no change in prices was made. The conservative policy of the Wire Nail manufacturers in the matter of prices is commended by the trade. We note a continued heavy demand, specifications on contracts for Wire Nails placed some time ago coming forward very freely. Current demand is also large and the output of the mills is shipped as fast as made. Some of the manufacturers do not closely observe the differentials in prices to jobbers and retailers. We quote Wire Nails at $2.05 in carloads and $2.10 in small lots, f.o.b. mill.

Cut Nails.—The monthly meeting of the Cut Nail Association is scheduled for to-day, April 30. Owing to the difficulty in obtaining steel, the mills are unable to supply Nails in sufficient quantity to satisfy the requirements of the trade. The cost of steel would justify an advance in the price of Nails, but it is not considered probable that any action will be taken in this direction. The market is firm at the following quotations, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	$2.05
Less than carload lots	2.10

New York.—The demand for Cut Nails is fair from the territory tributary to this point. Owing to the difficulty of keeping stocks well assorted the tone of the market is firm. Quotations for carloads and less than carloads are as follows:

Carload lots on dock	$2.18
Less than carload lots on dock	2.23
Small lots from store	2.30

Chicago, by Telegraph.—There is a steady order demand for Cut Nails, and a firm tone has prevailed without essential change in prices. Jobbers continue to complain of the difficulty in keeping well assorted stocks, because of the delay in making shipments from the mills. Small lots are quoted at $2.30, a premium over Wire Nails.

St. Louis, by Telegraph.—The demand and inquiry for Cut Nails are fair, and $2.30 for small lots from store continues to be the quotation.

Pittsburgh.—Reasonably prompt deliveries can be had in Cut Nails, but a few of the mills are still somewhat behind on contracts, due principally to the scarcity of steel. We quote Cut Nails at $2.05, base, in carloads, and $2.10 in less than carloads, fo.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination.

Barb Wire.—The manufacturers of Barb Wire still find themselves unable to supply the demand promptly. Prices are firmly maintained and are represented by the following quotations, f.o.b. Pittsburgh, 60 days, or 2 per cent. for cash in 10 days:

	Painted.	Galv.
To jobbers in carload lots	$2.60	$2.90
To jobbers in less than carloads	2.65	2.95
To retailers in carload lots	2.70	3.00
To retailers in less than carloads	2.80	3.10

Chicago, by Telegraph.—An active demand continues for Barb Wire, manufacturers being still unable to catch up with orders already booked. Jobbers are having an active call. Prices remain at $2.80 for Painted and $3.10 for Galvanized in single carload lots, with 5 cents extra for small quantities.

St. Louis, by Telegraph.—The report from the jobbing trade concerning the conditions governing the market at this point for Barb Wire continue to be very encouraging. In small lots Painted is quoted at $2.90 and Galvanized at $3.20.

Pittsburgh.—Demand for Barb Wire continues heavy, and the mills are still somewhat behind in deliveries. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, $2.60; Galvanized, $2.90; less than carload lots, Painted, $2.65; Galvanized, $2.95.

Plain Wire.—There is no improvement noted in the deliveries by the mills, that are crowded with orders. The consumption of Plain Wire continues large, owing partly to the requirements of manufacturers of Woven Fencing. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. for cash in ten days:

Base sizes.	Plain.	Galv.
To jobbers in carload lots	$2.00	$2.40
To jobbers in less than carload lots	2.05	2.45
To retailers in carload lots	2.05	2.45
To retailers in less than carload lots	2.15	2.60

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

6 to 9	Base					$0.40	extra.
10	$0.05	advance	over	base		.40	"
11	.10	"	"	"		.40	"
12 and 12½	.15	"	"	"		.40	"
13	.25	"	"	"		.40	"
14	.35	"	"	"		.40	"
15	.45	"	"	"		.75	"
16	.55	"	"	"		.75	"
17	.70	"	"	"		1.00	"
18	.85	"	"	"		1.00	"

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.

Chicago, by Telegraph.—Liberal orders continue to be received for Plain Wire, and the market remains steady. Mills are still crowded with orders and deliveries are slow. Jobbers are selling small lots from stock at $2.20.

St. Louis, by Telegraph.—Plain Wire is moving in fair volume, and prices continue as before, No. 9 at $2.25 and Galvanized at $2.65, with the usual advance for other sizes.

Pittsburgh.—No change was made in prices at the meeting of the manufacturers of Plain Wire, held in Chicago on Thursday, April 27. Demand continues heavy and there is difficulty in getting prompt deliveries. We quote Plain Wire at $2 and Galvanized at $2.40, in carload lots, f.o.b. Pittsburgh. For small lots the usual advances are charged.

Wire Cloth.—The market for Wire Cloth and Poultry Netting is very firm. There is a decided scarcity, especially of Wire Cloth, and those who have stocks on hand are able to realize very satisfactory profits.

Wrought Iron Goods.—There is a tendency in Wrought Iron Goods toward somewhat higher prices. While no general advance has been made, some of the manufacturers are withdrawing some of the extreme discounts which they have been giving.

Axes.—With May 1 the manufacturers' advanced prices on Axes, to which we have already referred, go into effect. As the trade were given an opportunity to place orders in anticipation of the advance it is not unlikely that the goods will continue to be marketed to the retail trade at about the same prices as heretofore.

Whips.—The manufacturers of Whips are withdrawing outstanding quotations, on account of the marked increase in the cost of some of the raw material.

Rivets.—In view of the heavy demand and the cost of the raw material the Rivet market is characterized by a strong tone, and it is intimated that there is some possibility of an advanced price being announced.

Washers.—The market is showing the effect of the good understanding which prevails between the manufacturers of Washers. Prices are very firmly maintained.

Wrought Brass Butts.—At a conference of the manufacturers of Wrought Brass Butts in Waterbury, Conn., April 29, the price was advanced from discount 40 and 5 to discount 30 and 5 per cent., an increase of 16 2-3 per cent. on the previous price.

Cordage.—Conditions which have characterized the Rope market for the past few weeks are unchanged. A fair amount of Rope is being sold, but demand is not up to what is usually expected for this season. Quotations are as follows: Sisal Rope, on the basis of 7-16 inch and larger, 9½ to 10 cents per pound; Manila Rope, on the same basis, 13½ cents, with a rebate of ¼ cent per pound in larger quantities.

Paris Green.—At the present time the demand for Paris Green is not large. The trade as a rule have bought very freely, and some manufacturers have sold their entire production and withdrawn from the market. Duplicate orders from the trade will depend upon conditions ruling later in the season, as to size and frequency. Owing to an absence of any agreement among the manufacturers there is some variation in prices. Quotations are as follows:

	Cents.
Arsenic kegs or casks	11¼ to 12
Kegs, 100 to 175 pounds	11¾ to 12½
Kits, 14, 28 and 56 pounds	12¾ to 13½
Paper boxes, 2 to 5 pounds	12¾ to 13½
Paper boxes, 1 pound	12¾ to 13½
Paper boxes, ½ pound	13¾ to 14½
Paper boxes, ¼ pound	14¾ to 15½

Glass.—The National Window Glass Jobbers' Association have advanced the price from store to 89 per cent. discount for all sizes of both double and single strength Glass. Higher prices are anticipated by them at the time of their next purchase, which if demand is large is expected to be made during the summer. It is reported that the combined companies have sold considerable Glass during the past week at an advance over the price received for the last large order. While the combined companies appear to be firm in their belief of a large demand, there is as yet no indication of it at this point, as jobbers of Glass are doing practically no business. A paper devoted to Glass interests reports that the general strike in Belgium is ended, but that it was not known whether the Glass workers had returned to work. Quotations are as follows:

	Discount.
From store, single and double strength	89%
F.o.b. factory, carload lots:	
Single and double strength	90 and 5%

Paints and Colors.—*Leads.*—The favorable weather has given an opportunity to commence work which has been previously delayed, resulting in a free delivery of contract orders. Indications point to a continued demand for White Lead in Oil. Quotations are as follows: In lots of 500 pounds or over, 6 cents; in lots of less than 500 pounds, 6½ cents per pound.

Oils.—*Linseed Oil.*—There is comparatively little new business doing in Linseed Oil. The large buyers have anticipated an advance in price for the last two or three months, and most of them have contracted for enough Oil to carry them until June, if not longer. Manufacturers are shipping Oil on contracts, the prices of which range from 40 to 60 cents per gallon. The advance in price which seemed probable last week is not likely to take place if the present lack of demand continues. Orders are confined to small lots. Quotations are as follows: City Raw, in lots of five barrels or more, 66 cents; in lots of less than five barrels, 67 cents per gallon. Out of town brands of Raw are quoted at 64 to 65 cents per gallon, according to quantity.

Spirits Turpentine.—Buying at this point is confined to small lots of Turpentine. Deliveries are being made to consumers on contract orders. Quotations for spot are as follows, according to quantity: Southerns, 45½ to 46 cents; machine made barrels, 46 to 46½ cents per gallon. Reports are to the effect that there is a decrease of offerings at the South, and a firmer market.

THE New York branch of Matthews & Willard Mfg. Company, Waterbury, Conn., manufacturers of various kinds of Lamps for household use, bicycles, automobiles, &c., also Chafing Dishes, has been removed from 40 Murray street to Fourth and Wooster streets.

W. N. Vrooman & Son of Dowagiac, Mich., have sold their Hardware business to Bishop & Schmitt.

Hardware Organizations.

Texas Hardware Jobbers' Association.

A very interesting and profitable meeting of the Texas Hardware Jobbers' Association was held in Fort Worth on the 21st and 22d inst. A diversion in the matter of preparation of papers was made this year. No one was asked to prepare a paper, but certain firms were assigned subjects, the discussion of which they opened, and a free discussion then followed by all present. All the matters assigned for consideration were of a local nature.

The following officers were elected for the coming year:

JAMES MORONEY, Moroney Hardware Company, Dallas, president.
J. C. BERING, Bering-Cortes Hardware Company, Houston, first vice-president.
JAS. BURNSIDES, Wm. Henry & Co., Fort Worth, second vice-president.
ROBERT F. BELL, the R. E. Bell Hardware Company, Weatherford, secretary-treasurer.

EXECUTIVE COMMITTEE.

G. A. Trumbull, Huey & Philip Hardware Company, Dallas.
F. A. Heitmann, F. W. Heitmann & Co., Houston.
Ed. S. Hughes, Ed. S. Hughes & Co., Abilene.
J. J. Dickerson, H. S. Bettes Hardware Company, Paris.

TRANSPORTATION COMMITTEE.

Charles Nash, Nash Hardware Company, Fort Worth.
E. A. Peden, Peden & Co., Houston.
W. L. Sanford, Roberts, Sanford & Taylor Company, Sherman.

MANUFACTURERS' COMMITTEE.

A. C. Goeth, Walter Tips, Austin.
Jos. Meyer, Jos. T. Meyer Company, Houston.
Chas. Elmendorf, Elmendorf & Co., San Antonio.

GRIEVANCE COMMITTEE.

S. Philip, Huey & Philip Hardware Company, Dallas.
R. E. Bell, the R. E. Bell Hardware Company, Weatherford.
Walter Tips, Walter Tips, Austin.
C. N. Roberts, Roberts, Sanford & Taylor Company, Sherman.

After selecting Dallas as the next place of meeting the meeting adjourned.

East St. Louis Retail Hardware Dealers' Association.

The following resolution was unanimously adopted at a regular meeting held on April 7 by the East St. Louis Retail Hardware Dealers' Association, East St. Louis, Ill.:

Having learned with great satisfaction of the election of our esteemed neighbor and townsman, H. G. Cormick, to the presidency of the National Retail Hardware Dealers' Association, we commend him to every retail hardware dealer in the United States for his untiring efforts in behalf of our State Association.

We should all fully recognize the great sacrifice he is making in accepting this additional office as president of the National Association, and each and every member should take it upon himself to render him every possible assistance and encouragement. Mr. Cormick, as well as all of the other heads of our association, certainly deserves the undivided support of every member for the time, money and service so gratuitously given for our benefit. Every local association in the country should render their officers every possible assistance.

Southern Hardware Jobbers' Association.

The officers of the Southern Hardware Jobbers' Association have decided to introduce a new feature at their twelfth annual convention, which will be held in Atlantic City, N. J., June 17-20, headquarters being at the Marlborough House. The plan is to give each delegate and visitor a number, and from these numbers prepare an index, copies of which will be printed and distributed to all in attendance at the convention. The main object of this is that there may be no occasion for any one in attendance at the meeting being unacquainted with the name, address and occupation of any one present. To accomplish this result special button badges will be prepared, numbered consecutively from 1 to 500—the indexes, of course, to be similarly numbered. These buttons will be forwarded to the delegates and visitors in advance of the meeting, and they will be expected to wear the button from the time they leave home until the convention adjourns, so that strangers traveling together to the convention may make themselves known to each other, and thus contribute to the pleasure of the trip. It is therefore requested that concerns who are intending to be represented at the convention shall send as

early as possible to C. B. Carter, secretary-treasurer of the association, Knoxville, Tenn., the names of the persons who will represent them at the meeting. Mr. Carter will thus be in a position to forward the numerical buttons and incorporate the names in the index pamphlet.

American Hardware Manufacturers' Association.

The regular semiannual meeting of the American Hardware Manufacturers' Association will be held at the Marlborough House, Atlantic City, N. J., on June 17-20, 1902. This association holds two meetings each year, at the same place and on the same dates as the annual conventions of the National Hardware Association and the Southern Hardware Jobbers' Association, the annual meeting being held during the convention of the National Hardware Association, which is usually in November. Arrangement is made so that its executive sessions shall be held simultaneously with those of the jobbers' association, with a view to securing a full attendance at the business meetings of both associations, and allowing both manufacturers and jobbers greater opportunities to enjoy together the social features of these conventions.

Chicago Retail Hardware Association.

Following is the imposing list of members of the Chicago Retail Hardware Association, corrected up to April 1:

Adam, A. L., 1742 Milwaukee avenue.
Algots & Broman, 6812 Wentworth avenue.
Ansley, J. E., 1715 West Sixty-third street.
Armbruster & Son, J. F., 1024 East Belmont avenue.
Bartholdy, N. C., 486 Milwaukee avenue.
Bartholdy, G. J., 806 West North avenue.
Bartley Hardware & Cycle Company, 516 West Chicago avenue.
Beiersdorf, E. H., 154 Wells street.
Bewersdorf & Sachtleben, 906-908 West Twenty-first street.
Bixler, J. H., 3716 South Halsted street.
Black, John, 81 Ninety-second street.
Blockie, G. E., 634 West Seventy-ninth street.
Borchardt, J. F., 495 Ogden avenue.
Boysen, B. F., 780 West Division street.
Bromann, H., 992 West Twenty-first place.
Brown, Leroy P., 149 Cheltenham place.
Brucker, M., 325 North Lincoln street.
Bruns, Theo., 1128 Belmont avenue.
Bullard & Gormley, 78 East Randolph street.
Butweis, J. & M., 282 Ninety-second street.
Carr, Christ, 315 East Division street.
Cerveney & Horn, 661 Milwaukee avenue.
Christensen, N., 1147 Fifty-ninth street.
Clark, J. H., 155 Lake street.
Costello, W. B., 361 Forty-third street.
Dalbke, C., 189 West Division street.
Dalstrom, Chas. A., 1340 Belmont avenue.
Decker & Co., Wm. H., 204 Thirty-first street.
Deinet, Chas., 6927 Stony Island avenue.
Englehardt, Geo. A., 726 Milwaukee avenue.
Englehart, Martin, 473 Lincoln avenue.
Fehr, Hans, 249 West North avenue.
Feyereisen, Chas., 1569 West North avenue.
Fittge, H., 3809 Archer avenue.
Geier & Peppler, 700 Lincoln avenue.
Geiger, D. G., 57 West Van Buren street.
Gnadt, H. E., 225 Roscoe Boulevard.
Greenheid, A., 765 Armitage avenue.
Gundling, G. E., 365 Wells street.
Guthaus Bros. & Mathews, 1166 Milwaukee avenue.
Haack, Aug., 4749 South Laflin street.
Hahn, Christ, 1148 Armitage avenue.
Hahne, E. C., 94 East Fullerton avenue.
Hauck, Ernest, 383 East Division street.
Herzog & Spindler, 587 West Chicago avenue.
Held & Hagen, 1714 North Clark street.
Hirschauer, Anton, 5724 Wentworth avenue.
Hodge & Homer Company, 47 West Randolph street.
Hoffman, And., 5036 State street.
Hoffmeister, Chas. A., 4822 Marshfield avenue.
Hummel, M. P., & Co., 1802 West Chicago avenue.
Jackel, Chas. J., 1408 West Twenty-second street.
Juergens & Kasten, 548 West Division street.
Knudsen, K. R., 3453 Cottage Grove avenue.
Kratochvil, Alois, 877 West Nineteenth street.
Kral, Jos., 423 West Eighteenth street.
Krueger, Theo., 141 Milwaukee avenue.
Krueger, W. J., 625 West Twelfth street.
Krueger & Schroeder, 1653 West Twelfth street.
Krueslin, H., 437 West Fullerton avenue.
Kurtz, Fred., 1061 West Madison street.
Lindberg, N. N., 1606 Milwaukee avenue.
Lenham Hardware Company, Van Buren street and Ogden avenue.
Lott, G. R., 1002 West Lake street.
Ludwigs, W. A., 611 Blue Island avenue.
McClure & Co., H. O., 626 West Seventy-ninth street.
McLaughlin, D., 1353 Ogden avenue.
Martin, W. A., 980 West Madison street.
Matthews, F. A., 893 West North avenue.
Matthews, L. M., 1850 Milwaukee avenue.
Melohn, Sigfried, 952 Lincoln avenue.
Menzel, Chas. H., 468 West North avenue.
Meyer, Jos., 272 West Chicago avenue.
Mortimer, Chas. A., & Co., 6838 South Halsted street.
Muehlhahn, H., 694 West North avenue.
Naumann, E. E., 744 Colorado avenue.
Neeb, G. A., 1141 Seventy-fifth street.
Newell, Chas. G., 353 Clybourne place.
Nettbaum, Henry A., 302 East North avenue.
Niesel, C. A., Jr., 73 Fullerton avenue.
Noebling, Wm., 415 East North avenue.
Orr & Locket Hardware Company, 71 Randolph street.
Paul & Krogh, 294 Grand avenue.
Pawelkiewicz, E. J., 1812 Forty-eighth street.
Peterson, C. E., 4929 Cottage Grove avenue.
Pfeiler, Geo. J., 6308 South Halsted street.
Pophal, A., 4828 Ashland avenue.
Popken, Ben., 212 Lake street, Oak Park.
Porter, F. F., 314 West Sixty-third street.
Porter, Grant W., 370 East Sixty-third street.
Powers, M. W. & O. D., 95 East Forty-third street.
Raffel Bros., 438 West Chicago avenue.
Rahn, Geo., 424 Belmont avenue.
Rebmann, H. E., 2078 West Lake street.
Rendtorff, J. C., 296 Clybourne avenue.
Repsold & Co., Ed., 2406 Milwaukee avenue.
Rice, John C., 494 Wells street.
Rosenberg, L., 224 Ninety-second street.
Rosenfelder, P., 5221 Ashland avenue.
Ruedell, J. M., 514 Ogden avenue.
Ruhling, Fred., 514 North Clark street.
Sander, E., 872 Lincoln avenue.
Schanze, F. H., 566 West Twelfth street.
Schlick, E. R., 437 North Clark street.
Schmertman, L. H., 588 Madison street.
Schmidt, F. C., 7123 Cottage Grove avenue.
Schuberth Bros., 5822 Wentworth avenue.
Schutz, John, 1110 South Leavitt street.
Schweighoefer, M., 1059 West North avenue.
Shuster, P. H., 1590 Thirty-fifth street.
Siewert, Wm. F., 1329 Armitage avenue.
Sivertsen, M., 1151 West North avenue.
Smith, H., 921 Armitage avenue.
Smith, J. L., 752 West North avenue.
Solle, A. R., Hardware Company, 252 Thirty-first street.
Sommers, E. L., 7105 South Chicago avenue.
Sommers, Fred., 2137 State street.
Stauber, L., 360 West Chicago avenue.
Stebb'ns, S. J., Company, 74 Van Buren street.
Steinagle, L. E., 1621 Forty-seventh street.
Strauss, Geo., 1085 Milwaukee avenue.
Stuckhart, H., 2517 Archer avenue.
Tyring, H. E., 66 West Madison street.
Waller, Fred., Lyons, Ill.
Wayt & Amerson, 113 North Fifty-second avenue.
Whiting Hardware Company, Whiting, Ind.
Wiersig, Rud., 1236 North California avenue.
Wilson & McDonald, 338 Fifty-fifth street.
Winkenwerder, Wm., 1740 Lincoln avenue.
Wirths, J. C., 682 Grand avenue.
Wood, Wm. G., 819 West Irving Park avenue.
Wooley, C. F., 2935 Archer avenue.
Wuster, Louis, 427 Milwaukee avenue.

PRODUCTION OF WIRE NAILS.

ACCORDING to the statistics of the American Iron and Steel Association the production of Steel Wire Nails in the United States in 1901 amounted to 9,803,822 kegs of 100 pounds, as compared with 7,233,979 kegs in 1900, an increase of 2,569,843 kegs, or over 35 per cent. In 1899 the production amounted to 7,618,130 kegs, in 1898 to 7,418,475 kegs, in 1897 to 8,997,245 kegs, in 1896 to 4,719,860 kegs and in 1895 to 5,841,403 kegs. The Wire Nails produced in 1901 were manufactured by 61 works, as compared with 56 in 1900. The production in 1901 was greatly in excess of that of any other year, exceeding by 906,577 kegs that of 1897, the next year of largest production.

The following table gives the production of Wire Nails in 1900 and 1901 in kegs of 100 pounds:

States.—Kegs of 100 pounds.	1900.	1901.
Massachusetts, Rhode Island and Connecticut	212,584	71,553
New York	63,466	136,118
Pennsylvania	2,158,399	3,118,508
Maryland, West Virginia, Kentucky, Alabama and Ohio	2,516,391	3,633,894
Indiana and Illinois	2,195,672	2,716,748
Michigan, Wisconsin and California	87,467	127,001
Totals	7,233,979	9,803,822

LORING COES' NINETIETH ANNIVERSARY.

LORING COES, president and treasurer of the Coes Wrench Company, also president of Loring Coes & Co., Incorporated, both prominent manufacturing companies at Worcester, Mass., celebrated his ninetieth birthday at his home in that city, April 22. Mr. Coes attends personally to his numerous and important interests daily, despite his great age, and is an active director in a number of outside concerns, among which are an electric lighting plant and a banking house in Worcester. He is as active as many much younger men and an ardent fisherman and a sportsman as well, and at this time is arranging for his thirty-eighth annual trip to the Rangeley Lakes in Maine.

Mr. Coes was the original and sole inventor of the first Adjustable Screw Wrench. His first patent was dated 1841, and in general contour and outline the tool has remained practically the same in appearance. He has continuously improved the product, and during the past year has perfected several patents which will further improve the Wrench, preparations now being made for the production of the Wrench in its improved form. Few tools on the market have been so universally used as the Screw Wrench, and it is remarkable that at this time there should have been so little radical change and that its inventor should still control and improve the product of the house he founded. The Coes Wrench is shipped to almost every country in the world where Wrenches are used.

LORING COES.

Loring Coes was born in Worcester 1812. He was educated as a mechanic, and formed a partnership with his brother, A. G. Coes, occupying the old Court Mill on Lincoln square. They moved to New Worcester, and after 20 years the firm of L. & A. G. Coes were dissolved. The amalgamation of the Coes Wrench Company and Loring Coes & Co. is of recent occurrence, Loring Coes being now the sole owner and active manager of the consolidated company.

Mr. Coes' vitality and vigor is an illustration of what simple abstemious living will do, combined with a strong constitution. On the occasion of his last anniversary many of his callers were what are generally known as old men, but they were young as compared with the venerable host. In his mail came a great number of letters from Hardwaremen all over the United States, and among these also were some from men who did business with Mr. Coes when he was in middle life, but not one of them can date his business beginning back more than 60 years. Mr. Coes is greatly esteemed alike by his friends and the trade for his marked ability, sterling integrity, generous qualities and upright character.

THE JOBBERS' CONSOLIDATION.

THERE is little new to report in regard to the consolidation of jobbing interests. Those identified actively with the matter report the progress which is being made as entirely satisfactory. There is necessarily in connection with the carrying out of the project a great deal of detailed work, and this is understood to be receiving the attention of those in charge of the movement. It is also intimated that there is the possibility that some of the houses whose names have not been given out as identified with the consolidation are considering the matter and may be taken in. On the other hand, there are rumors current that some of the houses supposed to be parties to the movement deny, more or less vaguely, their connection with it. In this condition of things a great variety of opinions are naturally current in regard to the outcome of the consolidation and its effect on the trade. The final announcement of the plans on which the aggregation will work and the houses which will be identified with it is awaited by the trade, who look upon the whole proposition as one of peculiar interest.

F. E. MYERS & BRO.

THE marked growth of the business of F. E. Myers & Bro., Ashland, Ohio, manufacturers of the Myers Pumps, Hay Tools, Stayon Door Hangers, &c., has compelled this firm within the last three years to add to their already large plant two three-story additions, 50 x 150 feet. A new power plant was also added during the last year, so that the plant is now driven entirely by electricity. Their office facilities had also become very inadequate. Recent changes have lately transformed the entire lower floor of one of the main wings, 50 x 150 feet, into splendidly arranged and equipped offices. The offices are fitted up in luxurious style and provided with all the modern conveniences. Separate communicating offices for the use of the heads of the firm and managers of departments give privacy and at the same time render communication between departments easy. All the offices have an abundance of light, are well ventilated and everything possible has been done for the comfort of the large number of clerks employed.

Utah Mining Machinery & Supply House are a new concern who will commence business in Salt Lake City about May 15. The company have been organized with a capital stock of $100,000 and the following officers: T. R. Jones, president; J. E. Galigher, vice-president; W. W. Armstrong, treasurer; these persons, with W. H. Dickson and Edwin F. Holmes, constituting the Board of Directors. The other incorporators are Joseph Farrer C. L. Rood, Henry Newell, Dr. S. H. Pinkerton, J. T. Clasby, James Farrell, J. H. Tucker, Susan B. Emery-Holmes, D. Macpherson Boyd and Walter Scott, the latter being secretary of the company. Mr. Scott is also secretary of the Anchor, Quincy and California Mining companies. The project is in charge of Joseph E. Galigher, formerly superintendent of the Ontario Company's milling plants, and who for many years past has been prominently connected with George M. Scott & Co. and the Scott-Strevell Hardware Company. Associated with him in the management will be Arthur J. Lowe, who for the past 15 years has been with the Scott-Strevell Hardware Company and their predecessors. We are advised that the company have secured the agencies of a large number of desirable Eastern and Pacific Coast manufacturers of Mining Machinery and Hardware and other mining supplies.

W. A. Brodt, Hardware merchant, Frankfort, Kan., has admitted a partner in the business, and the style has become Brodt & McConchie.

New York State Association of Retail Hardware Dealers.

THE meeting which was held in the Yates Hotel, Syracuse, on Monday and Tuesday of the present week was in all respects most successful. The attendance for a meeting of that character, simply for the purpose of organization, was exceptionally large, and the gathering was pervaded by an intelligence and enthusiasm from first to last which promises well for the success of the association. The meeting was notable for the thoroughly representative character of the merchants, as is indicated by the list of persons in attendance given in another column. The identification with the movement of so many men of ability and position in the trade gives it at once a standing which will do much to insure its growth and the accomplishment of the purposes for which the association is organized. It is evident that New York State will promptly take a leading place among retail Hardware associations.

History of the Movement.

Merchants who have been watching the formation of associations in various States and have recognized the fact that there has been abundant need of an association in New York State have from time to time suggested in our columns the desirability of the matter being taken up, and letters touching on the subject have been published in these pages. The present movement owes its inception, so far as active effort is concerned, to John R. Taylor of Little Falls, who early in the year entered into correspondence with merchants in all parts of the State to elicit their views on the subject. A number of letters discussing the question in its different aspects and expressing approval of the project were published in these columns, and the attention of the trade at large was thus brought prominently to the subject. In this way a very general interest was awakened in the matter. In this promising condition of things Mr. Taylor felt justified in calling the meeting which has been held, which resulted in the organization of the State Association under very favoraable auspices.

The Monday Meeting.

When the delegates assembled on Monday afternoon there was a goodly gathering of merchants from the different sections of the State. The meeting was called to order by John R. Taylor, who nominated as temporary chairman O. D. Towne of Saratoga Springs, who made a brief address on taking the chair, touching upon conditions existing in the trade and the desirability of Hardware merchants taking united measures for the correction of existing evils and the furtherance in many ways of their interests. The following committees were appointed:

CONSTITUTION AND BY-LAWS: John T. Sage, Irving Van Voris, W. D. Hallowell.

NOMINATIONS: F. W. Gardner, Thomas Maloney, Geo. B. Allen.

PRESS: J. B. Foley, Allen S. Matthews, Mr. Goodnoe.

The chairman then introduced M. L. Corey, secretary of the National Retail Hardware Dealers' Association, who made a very interesting and effective address, referring to the lines on which the association could most advantageously do its work. Mr. Corey's address was listened to with the closest attention and interest. His attendance at the meeting was very much appreciated by the delegates, and his advice was sought throughout the convention in regard to many details of the work. Addresses were also made at this session by John R. Taylor, A. S. Matthews, H. D. Hull, J. H. Callahan and others. Beside expressing their hearty aproval of the general work of the association many practical questions connected with the subject were canvassed.

Attendance of Delegates

The following is a partial list of the houses who were represented at the meeting:

Weatherby & Abbee, Addison.
Choate Bros., Auburn.
Shallish & Rich, Auburn.
P. M. Herron Hardware Co., Auburn.
J. S. Voorhees & Co., Baldwinsville.
Jas. F. Williams, Baldwinsville.
Callahan & Douglass, Binghamton.
Geo. B. Allen, Buffalo.
Farr Bros., Canastota.
Frost & Williams, Corning.
Hapeman, Van Duzen & Co., Cato.
Irving Van Voris, Cobleskill.
Buck & Lane, Cortland.
J. W. Wessell, Central Bridge.
Sisson & Smalley, Cuba.
Geo. A. Sheldon, De Kalb Junction.
N. D. Walker, De Kalb Junction.
Griswold, Maloney & Co., Elmira.
Rockwell & Hammond, Elmira.
C. F. Case, Farmer.
Relyea & Rockwood, Fulton.
Geo. Johnston, Fulton.
Allen S. Matthews, Ft. Covington.
S. Clayton, Frankfort.
Jansen & Huestis, Fonda.
A. J. Snow, Fulton.
Prowse & Pelton, Herkimer.
W. G. Popple, Hermon.
J. & P. McFarland, Hannibal.
F. E. Williams, Homer.
C. J. Rumsey & Co., Ithaca.
Norton J. Newth, Ilion.
John G. Ferris, Johnstown.
John R. Taylor & Co., Little Falls.
W. D. Crandall, Leonardsville.
Charles E. Leggett, Newark.
L. G. Matteson, Newark.
Miller Hardware Co., Olean.
John Barr, Ogdensburg.
J. S. Houk, Owego.
Peek & Grieve, Perry.
Countryman & Co., Potsdam.
Hallowell & Wise, Penn Yan.
Louis Ernst & Son, Rochester.
John T. Sage, Rochester.
Rufus Snyder, Rosendale.
John B. Foley & Co., Syracuse.
Dotterer & Becker, 722 North Salina street, Syracuse.
Teller & Goodnoe, Schenectady.
Towne Hardware Co., Saratoga Springs.
F. W. Gardner, Saratoga Springs.
H. Curtis, Springville.
H. D. Hull, Troy.
H. M. Riggs, Turin.
Charles Sherwood, White Plains.
C. V. Webster, Waterloo.
W. G. McLean & Co., Waterville.

Tuesday's Sessions

The session on Tuesday morning was entirely devoted to the consideration of the constitution and by-laws. The report of the committee was adopted with a few minor changes, as follows:

Constitution and By-Laws.

PREAMBLE.

The New York State Association of Retail Hardware Dealers is an organization intended to include in its membership all legitimate dealers in Hardware in the State of New York, who conduct their business in a manner not prejudicial to the general welfare of the Hardware trade; all membership being subject to the approval of the Executive Committee before final acceptance. The trade has long recognized the necessity for co-operative work in protection against trade abuses. It is the purpose of the New York State Retail Hardware Dealers' Association to furnish such protection as far as possible. As such protection is only obtainable through the medium of a large and interested membership, we earnestly invite the attention of all dealers who are not members, to the end that they may see the necessity of joining their influence to ours in this work.

RESOLUTIONS

Whereas, Some manufacturers and wholesale dealers in general Hardware, Stoves, Tinware and kindred lines persist in selling their lines through prejudicial channels to our injury and detriment, placing us toward our customers in the light of extortioners, causing endless trouble, and

Whereas, The system of protecting us from this wrong is ineffective, it is absolutely necessary to perfect such a system by united action, which will remove these evils from which we have suffered for years. Therefore, be it

Resolved, That the members of this association confine the purchase of Hardware, Stoves, Tinware and kindred lines, as far as practicable, to manufacturers and wholesale dealers who sell goods to firms that are regularly engaged in the retail Hardware business, as defined in these resolutions.

Resolved, That it is the sense of this association that the interpretation of the term "retail Hardware dealer," as set forth in the above resolution, to entitle him to purchase Hardware, Tinware and kindred lines, be construed to mean any person having an established place of business and carrying a line of Hardware, Stoves, Tinware and such goods as are usually kept in a first-class Hardware store; excepting in places where there are no regular Hardware stores. General stores who do not use the line in a way that demoralizes the trade, and any other store not objectionable to the regular dealers in such territory, shall be construed as legitimate.

Resolved, That it is not the intention of the above resolutions to prevent the interchange of goods mentioned between manufacturers and wholesale dealers in such goods, or for export trade, and that the further interpretation of these resolutions is hereby vested in the Ex-

ecutive Committee, with power. The following are exempt from these resolutions: The United States Government, railroads and such manufacturing industries and companies as the Executive Committee may approve, for such goods as are necessary for their respective lines of business.

Resolved, That any manufacturer or jobber in Hardware, Stoves, Tinware or kindred goods furnishing net prices or any discount from list prices, contrary to the foregoing resolutions, either by themselves, employees or agents, shall be considered as disapproving the above resolutions.

Resolved, That this association shall, as far as lies in its power, keep a record of all goods sold, and by whom sold, through prejudicial channels, and of all other violations of these resolutions.

Resolved, That every member of this association is constituted a committee of one, and is expected to report to the proper officers any violation of these resolutions.

Resolved, That it is the sense of this association that bids direct to consumers or contractors by jobbers or manufacturers, upon any kind of finishing or rough Hardware entering into the construction of buildings, are injurious to the retail trade, and that all such bids should be made by or through a regular Hardware dealer.

Resolved, That all meetings of the State association should be closed meetings, and that the published reports of the proceedings of same should be under the supervision of a press committee.

Resolved, That these measures are just and necessary for our welfare, and it is expected that their rigid enforcement will be observed.

Resolved, That this convention indorses the above, and urges its officers to use their best efforts to bring about the further formation of State associations so as to insure a greater national association, with the end in view that a uniform system of protection for the trade will prevail throughout the country.

Article I. Name.

The name of this association shall be the New York State Association of Retail Hardware Dealers.

Article II. Officers

The officers of this association shall be: One president, two vice-presidents, one secretary and one treasurer, who shall be elected by ballot at the regular meeting in each year.

Article III. Order of Business.

The order of business shall be:

1. Roll call of officers and members.
2. Naming committees.
3. Reading of minutes of last regular and called meetings.
4. Reports of committees.
5. New or unfinished business.
6. Propositions for the good of the association.
7. Adjournment.

Article IV. Meetings.

The regular meetings of this association shall be held between January 20 and March 10 in each year, the precise date and place being left to the Executive Committee.

Article V. Membership.

Any person or company who are now or shall hereafter engage in the retail Hardware business, and carry a full and complete assortment of the same, may become members of this association by making application to the secretary and paying into the treasury the amount of dues prescribed in the by-laws.

Article VI. Admission Fee and Dues.

The admission fee to membership shall be $5, payable in advance, which fee shall include the dues until the regular meeting following. The annual dues shall be $5, payable at each regular meeting.

Article VII Committees.

There shall be a Board of Directors, consisting of nine members elected at the organizing meeting, three to serve one year, three to serve two years, three to serve three years. At subsequent annual meetings three members shall be elected to hold office for three years, to take the place of those whose terms then expire.

The president shall appoint an Auditing Committee of three, who shall serve during his term of office.

Article VIII. Duties of Officers and Committees.

Section 1. It shall be the duty of the president to preside over all regular and called meetings, to exercise supervisory control over the affairs of the association, to carry out and enforce all measures adopted by the association, and to fill all vacancies in the offices by appointment until the next annual meeting.

Sec. 2. It shall be the duty of the vice-presidents to officiate for the president in his absence or disability.

Sec. 3. It shall be the duty of the secretary to keep accurately the minutes of all regular and called meetings of the association; to take charge of and settle all questions of dispute or otherwise that may be referred to him; to keep correct account of all money received and disbursed; to issue certificates of membership to all members and to render a correct itemized account of the same to the association at its regular meetings, and to perform such other duties as may be requested of him from time to time.

Sec. 4. It shall be the duty of the treasurer to receive all moneys from the secretary and to pay out the same on the order of the president and Executive Committee.

Sec. 5. It shall be the duty of the Board of Directors to act in conjunction with the officers in the general supervision of the association, and to make a report of the same at the next regular meeting, and to approve of all applications for membership.

Article IX. Voting.

Section 1. Each person or firm holding membership shall be entitled to one vote only on all subjects and at the election of officers.

Sec. 2. All questions introduced by motion shall be decided by a majority vote of all members present.

Sec. 3. All changes in the constitution and by-laws shall require a two-thirds majority vote of all members present.

Article X Amendments.

Thirty days' notice shall be given to the association of any proposed change in the constitution and by-laws.

Article XI. Quorum.

Ten members in good standing in the association shall constitute a quorum.

Seven members of the Executive Committee at called meetings shall constitute a quorum.

Article XII. Representation

All persons, firms or companies holding membership shall be represented at any regular or called meeting in person and not by proxy.

Article XIII. Offense.

In case of a violation of the resolutions of this association by any Hardware manufacturer or jobber, thereby affecting the business of any member of this organization, the member thus affected shall call on or correspond with such manufacturers or jobbers and endeavor to adjust the same, and if not satisfactorily adjusted, he shall then notify the secretary of his action, giving sufficient evidence as to the facts in the case, who shall immediately take the matter up, and if not then adjusted, the secretary shall present the matter to the National Association for adjustment, and if not satisfactorily settled shall notify each and every member of the association, who shall discontinue to patronize such manufacturer or jobber.

Article XIV.

By subscribing to the constitution and by-laws, persons, firms and corporations thereby agree and are pledged to conduct their business in accordance with the same. They also agree to carry out explicitly all requests of the Executive Committee, especially in matters relating to the violation of the constitution and by-laws by jobbers and manufacturers or resolutions adopted at any regular meeting of the association.

Election of Officers

The report of the Nominating Committee received the unanimous approval of the convention. The result was the election of the following gentlemen:

President, H. D. Hull, Troy.

First Vice-President, W. D. Hallowell, Penn Yan.

SECOND VICE-PRESIDENT, Thomas Maloney, Elmira.
SECRETARY, John R. Taylor, Little Falls.
TREASURER, J. B. Foley, Syracuse.
DIRECTORS, ONE YEAR: Chas. Sherwood, White Plains; J. H. Callahan, Binghamton; A. F. Miller, Olean.
TWO YEARS: G. B. Allen, Buffalo; Louis Ernst, Rochester; H. M. Countryman, Potsdam.
THREE YEARS: O. D. Towne, Saratoga Springs; Geo. W. Rockwell, Horseheads; Allen S. Matthews, Fort Covington.

Addresses.

On relinquishing the chair to the president of the association, Mr. Towne, who had been an exceedingly efficient presiding officer, introduced Mr. Hull in some felicitious remarks, alluding to his position in the trade and the fact that he was the oldest Hardware merchant in the association. Mr. Hull responded in a brief address, which was listened to with very much interest and pleasure. Addresses were also made by M. L. Corey, John H. Taylor and R. R. Williams of *The Iron Age*. The meeting then adjourned, with a general conviction on the part of the delegates that the good work taken in hand had been successfully inaugurated.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

Simmons Hardware & Mill Supply Company, Beaumont, Texas, have changed their name to Simmons Hardware Company and have increased their capital stock from $10,000 to $20,000. Orville Ewing has been elected treasurer and has assumed the management of the concern. The company will value catalogues, quotations, &c., relating to General Hardware, Sporting Goods, House Furnishing Goods, &c.

R. E. Zimmerman has succeeded Jos. H. Barker in the Hardware and Stove business in Beaver Falls, Pa., and requests manufacturers to send catalogues and other printed matter relating to general Hardware, Tinware, Paints and Oils, Stoves, Glass, House Furnishing Goods, lime, cement and sewer pipe.

Fire visited the wholesale and retail Hardware, Iron and Steel establishment of W. F. Dibblee & Son, Woodstock, N. B., a short time since. Their main store, while not entirely destroyed, was badly damaged by water. The loss was fully covered by insurance. The firm have resumed business at the old stand and are now conducting a water and smoke sale of damaged Hardware. They expect to have the store renovated and a full new stock on the shelves by June 1, when they expect to resume in full. As their collection of catalogues and price-lists was completely destroyed, they will appreciate copies of manufacturers' latest trade literature.

Guiterman, Pétard & Co., Limited, Paris, France, are in the market for a line of Twist Drills (short set, straight shank) in millimeter sizes, and would be glad to receive catalogues and prices from manufacturers through their New York office, 35 South William street.

E. C. Kurtz and R. J. Maple have embarked in the Hardware business at Nottingham, Ohio, under the style of Nottingham Hardware Company. The store of the new firm has been thoroughly fitted up for the business, and a complete stock of Hardware, Stoves, &c., will be carried. They also have a department devoted to plumbing and tinning. The firm would be pleased to receive catalogues, price-lists, &c., pertaining to the above lines.

Watt Harley Holmes Company, Fitzgerald, Ga., will open a new store at Cordele, Ga., where they will carry Shelf and Heavy Hardware, Mill Supplies, Tinware, Sporting Goods, Crockery, &c. They request catalogues and price-lists relating to these lines. D. Holmes, secretary and treasurer of the company, will manage the new store.

DEATH OF FELIX D. BERTHET.

FELIX D. BERTHET, whose portrait is herewith given, died in New York of paralysis the night of April 24, the funeral services being held in the evening of the following Saturday, at which a number of well known associates in the Hardware trade were present.

Mr. Berthet had been actively engaged in business as the representative of the United States Steel Lock Company, Clinton, Iowa, until his return from a Southern trip about Thanksgiving time, last fall, when he was compelled to give up his work. He was stricken with paralysis about three years ago, from which he never fully recovered, but being of an energetic and ambitious temperament he persisted in discharging duties that should sooner have been relinquished. He was again stricken last fall after returning from New Orleans.

Felix D. Berthet was born in Paris, France, in 1839, coming to this country with his parents seven years later. His early education was received under the supervision of his father, who conducted a classical school in New York, he continuing his studies later at St. Francis Xavier's College in West Seventeenth street, this city, from which he graduated. His first position in the

FELIX D. BERTHET.

Hardware trade was as a clerk with the old house of Peter Duryee on Greenwich street, from where, after a short apprenticeship, he connected himself with the jobbing house of Mulford & Sprague, afterward Mulford & Underwood, on Chambers street. On the retirement from business of that firm in the seventies, he was employed by the Norwalk Lock Company, through the instrumentality of Peter McCartee, now vice-president of the Stanley Works, his connection with the Norwalk Lock Company extending over a period of nearly 30 years. He represented them among the large trade in the principal cities of the Middle West until about five years ago, when he became identified with the Warner Lock Company, Chicago, afterward absorbed by the United States Steel Lock Company, Clinton, Iowa, with whom he remained until he died.

Mr. Berthet was universally respected by the trade and his associates, who speak of him in the highest terms as a representative Lock man, who thoroughly understood the business and was absolutely trustworthy. Several fellow travelers refer to him as one of the most upright men they knew, abstemious, free from vices and thoroughly reliable. Charles J. Healy, speaking of Mr. Berthet, said he never knew a better man on the road. Peter McCartee, his lifelong friend, remembers him as a handsome, rosy cheeked, curly headed boy who early in his career was a city buyer before he commenced to

travel, and later as a very able, energetic, high toned gentleman. Mr. Berthet is survived by a second wife, his first wife having died some years ago, two daughters and two sons, one of whom, Charles A. Berthet, is with the Yale & Towne Mfg. Company.

BRITISH LETTER.

Office of *The Iron Age*, HASTINGS HOUSE, NORFOLK ST., LONDON, W. C.

The Market.

The Hardware market this week has been on the whole fairly active. Travelers' orders from tourist resorts have been numerous and prices fairly good. In the foreign market there is a marked revival of business in the far East, and especially China, where the natives are at last buying implements of European manufacture. In one case, orders have been placed for some 15,000 Ploughshares for China of the simple construction commonly used in Ireland. Notwithstanding peace rumors, the South African trade remains as it was. Australian and New Zealand orders continue to come in in good quantity for assorted goods. From Sheffield comes a report on the hafting trade which will interest American Cutlery manufacturers:

Best Stag Horns are becoming increasingly scarce and dear. There are members of the trade who years ago bought the finest Horns at from £60 to £80 per ton; now they realize over £300 per ton. Thirty or 40 years ago it was no uncommon thing for as many as 400,000 Horns to be included in a sale; now half that number is seldom reached. As a rule, from 130,000 to 160,000 are offered. For Handles of certain sizes there is a very fair demand; but this does not apply all round. During the last week or two there has been some very free buying of Handles on behalf of American manufacturers. Taking the pearl trade all round, there is not much cause for complaint. For small sized Handles there is a steady demand; but larger sizes such as are required for more costly goods are not moving off so freely. There is a well sustained inquiry for pearl Scales, chiefly for the German market, where enormous quantities are used. Some large lots are also going to America. In the Cutlery trade generally there is a good deal of complaining, although the output altogether is very considerable.

Refrigerators.

In *The Iron Age* of March 27, page 57, I make reference to American Refrigerators. I venture to quote therefrom: "Is anything wrong with the Refrigerator trade? I should have thought that during the past six weeks heavy consignments of Refrigerators would have been crossing the Atlantic, but patient search from the middle of February up to to-day only discloses a few shipments of small proportions." I find I was touching upon a sore point. In conversation with the manager of one of the best known firms of American importers in this country, he produced *The Iron Age* of the date in question, remarking that he had a tale to tell. I transcribe his remarks as nearly as possible in his own words:

During the past few years many different brands of American Refrigerators have been put on this market, but they have all been of one type, and no attempt has been made up to now to introduce the English style of Refrigerator. The most useful Refrigerator for the English market is what is known as the "Chest" Refrigerator, and the best class of these Chests is made in England, the prices ranging from £4 retail and upward. I am acquainted with several good firms in London and the provinces who make these "Chest" Refrigerators in very large quantities.

The next type of Refrigerator which is made in this country, and for which there is a pretty good demand among the better class trade, is what is known as the "Cabinet" Refrigerator—what the Americans term "Apartment" Refrigerators. The price of the "Cabinet" commences at about £7 7s. retail and upward.

Now I will explain to you, as far as my knowledge of the trade goes, how it is there is an apparent falling off in the American Refrigerator trade in this country. The Germans very soon found out what pattern Refrigerator there was most call for in this country, and set to work to imitate them, with the result that they have now flooded this market with the "Chest" pattern, which one can buy in the shops at from £2 2s. and upward. I cannot say much for the quality of the £2 2s. article; at the same time it is built on the same style as the English "Chest," and has a very nice finish about it, and, moreover, to the public it looks extraordinary value. There are more of these cheap "Chest" Refrigerators sold in England than anything else, and, as far as my experience goes, the Americans have not catered for this article to hardly any extent.

If you will refer to the catalogues of the leading makers of American Refrigerators you will find that the type known as "Chests" is merely an incidental item which is generally found at the end of the book, and very few patterns of these are shown at all, and what there are are not built on English lines. In my opinion, if the Americans want to increase their trade in these goods they must make the shapes which are called for in this country, and must build them up in a similar way, exactly as the Germans have done. There is one style of make and one finish about the Americans which stamp it as American make, but with the Germans it is difficult to tell whether they are English or Continental make.

The gentleman who told me all this is himself an Englishman. While engaged with a British firm of merchants as buyer he was one of the first to introduce and cause to be sold American Refrigerators. The question now seems to be, Do American Refrigerator manufacturers want the English trade? If they do, and are seriously prepared to compete, I shall be happy to assist through the New York office of *The Iron Age* by forwarding one or two German catalogues with bottom discounts.

The Chile Trade.

A few weeks ago I described with some detail the relative positions of British, German and American Hardware trades in Chile. A later report to hand states that competition between these three countries becomes keener and keener. Both Germany and the United States are now employing travelers who penetrate to the small inland towns as well as to the ports, who are usually good linguists and acquainted with the people's tastes and habits. Many American and German manufacturers have shown a disposition to modify their designs to suit local demand, and have instructed their travelers to quote prices in Chilean currency, as also to obtain sales by weights or measures expressed in kilograms or meters. The following particulars should prove of interest to American Hardware exporters. I may, perhaps, remark that this report comes from Coquimbo:

Manufactured metals, &c., amounting in value to $229,000 were received during the year 1900, the United Kingdom contributing some $105,000 toward this amount.

In Enameled Iron Ware, such as Saucepans and Household Utensils generally, and in Lamps and Lamp Hangings and Fittings of all kinds, the lead was taken by Germany, and the United States followed close after.

The same countries sent hither the greater portion of the cheaper Cutlery and Table Service, displacing articles at one time all but exclusively British. German Sewing Machines and American Agricultural Machinery were favored over those of other countries, and Belgium and France found outlets for no inconsiderable proportion of the Iron Castings, Piping, &c., received.

Where the United Kingdom maintained her lead was in iron, bar iron and galvanized sheets, while Ironmongery most particularly showed signs of healthy reaction.

Of the $490,000 worth of other articles of merchandise, &c., imported, cattle from Argentina formed under this subhead the largest item, $100,000. Of Oils, including Paraffin and Paints, most came from the United States, as did the Turpentine and the Timber. Of Paper, for printing and for wall papering, Germany furnished some $32,500 worth, or nearly the whole, as was also the case in Glass and Glass Bottles.

The United Kingdom supplied all the Bricks (Fire Bricks), valued at $20,000, and all the Cement, $15,000; Germany and Belgium the Matches, $22,500, and the greater portion of the Crockery, $12,500. The United Kingdom's contribution toward other articles amounted to nearly $95,000.

Trade with Persia.

In *The Iron Age* of March 20 there is an interesting article by Alexander Hume Ford on Russia and America in the near East, in which some useful information is given in regard to railways in Asia Minor. Persia is doubtless going to be one of the future minor markets, and Teheran is quite a thriving depot for all goods. I should like to supplement Mr. Ford's article with some information upon transit in Persia. The greatest obstacle to the development of trade with Persia is the cost of transport into the interior of the country. There are four routes to the capital, each of which is inordinately expensive. In the north there is the new Russian road by way of Resht, Enzeli and the Caspian Sea, but this is practically open only to Russian goods. The overland journey here occupies from 14 to 18 days, at a cost, including customs, of about 400 francs per ton. The other northern route is by the caravan road through Trebizond, Erzeroum and Tabreez, 1100 miles in length, occupying from four to six months in transit and costing from 900 to 1100 francs per ton, plus 1 per cent. ad valorem duty. Naturally, this route is being less used every year. From the south there are two routes, via Bushire and Bagdad. From the former place the cost

of transport to Teheran is about 500 francs per ton, the journey (779 miles) occupying from three to six months. The Bagdad route is the shorter (503 miles), is covered in about three months, and costs about 400 francs per ton. Unfortunately, it is connected with Turkish territory and customs formalities, in addition to an ad valorem duty of 1 per cent. With all these obstacles it is not surprising that Persian trade develops but slowly, and until some cheaper, more rapid and more effective mode of transport is obtained there is not much hope of there being any great opening up of the land of the Shah. I may add also that proposals are being made in France to run a line of steamers to the Pedsian Gulf ports. Formerly the Messageries Maritime did maintain communications with the Persian Gulf by running a branch line from Bombay. The outbreak of the plague at the latter port so restricted the service that it had to be abandoned, and now there is no regular service. It is a little significant that in the last voyage of the Russian steamer "Korniloff" to Persian ports 60,000 rifles were landed at Bander Abbas.

CULTIVATING FOREIGN TRADE.

A BIT of enterprise in meeting the conditions found abroad is shown in the following incident: Allerton-Clarke Company, 97 Chambers street, New York, in the course of regular transactions in executing foreign orders, sent some Auger Bits of a well-known New England make to a leading market in South America. While the Bits were suitable for woods used in this country they made no progress whatever in one of the native woods used in that particular section, which is very hard and dense, will not float, and is almost indestructible. Down there this wood, which in appearance resembles mahogany somewhat and is called Quebracho, is used for railroad ties, but is so close grained and hard that instead of driving spikes into the ties to secure the rails they are obliged to bore a hole and use a screw spike. Some one at that end having a practical mind said that rather than send the Bits out there the better way was to ship a section of the wood to this country and have the manufacturer construct a Bit that would work in the wood they were using. This was done, and in due time Auger Bits were so made that they readily bored a clean hole in the wood furnished, although the regular Bits of this company are always tested in the toughest hickory they can obtain.

It is this increasing disposition to meet foreign conditions that is continually adding to the popularity of American made tools abroad, and the more this spirit of pleasing the foreigner is cultivated the more American manufacturers and merchants will profit in trade.

DISPLAY STAND AND SAMPLES.

SIDNEY SHEPARD & CO., Buffalo, N. Y., are offering a stand and a complete set of their Kitchen Specialties free of charge to customers buying the firm's assortment of Quick Selling Kitchen Specialties. The design of the display stand and samples is to increase the sales of this class of goods.

CHARLES E. MILLER, 97-99 Reade street, New York, dealer in all kinds of Automobile and Bicycle Supplies, has taken the remainder of the first loft in which he does business, thus adding 1200 square feet to the available floor space. This will enable him to fit up a new sample room, 50 x 12 feet, for displaying his varied lines of goods. Mr. Miller represents a number of manufacturers of the above lines of goods solely, in addition to regular lines marketed, and has now taken the sole selling agency of the Binate Gasoline Motor, designed for marine, stationary and automobile purposes, made by R. W. Coffee & Sons, Richmond, Va. These motors have a capacity of 8, 12 and 18 horse-power.

S. L. Duff has admitted a partner in his Hardware, Stove and Farm Implement business in Quenemo, Kan., and the style is now Duff & Graham.

CONTENTS.

UNION FURNACE MFG. COMPANY.

UNION FURNACE MFG. COMPANY, Altoona, Pa., with works at Union Furnace, Pa., have just issued a catalogue showing their line of Solid Steel Shovels, Spades, Scoops and Drain and Ditching Tools, which they will be pleased to mail to the trade on application. The list used is that adopted by the Shovel Association, April 1, 1902. The company advise us that they are now making Welded or Plain Back Shovels almost entirely, simply making as many socket Shovels as required to fill orders taken some time ago. They employ 80 men at the factory and are turning out daily over 100 dozen Shovels. They state that they are full of orders and are now running their plant night and day. The company are now also making a line of Plastering, Mason and Garden Trowels and invite the trade to write for prices.

SLIGO IRON STORE COMPANY.

SLIGO IRON STORE COMPANY, St. Louis, Mo., have just issued a large catalogue of the lines which they handle as importers, jobbers and manufacturers' agents. It is a well printed and conveniently arranged volume of nearly 600 pages and represents their different departments, including Iron and Steel, Heavy Hardware, Wagon and Carriage Wood, Trimmings and Mountings for carriages and coaches, and Paints, Brushes and Varnishes. A novel feature of the catalogue is the position of the index. These pages are printed in yellow and bound in the center of the book, which, it is hoped, will better serve the convenience of the customers than if the index occupied the conventional position at the beginning of the volume.

TRADE ITEMS.

THE PHŒNIX HORSE SHOE COMPANY'S plant, at Joliet, Ill., was partly destroyed by fire April 20. The company's operations, while checked to some extent, will not be seriously interfered with, as production in other departments will be continued.

THE TAYLOR WRENCH COMPANY of Marion, Ind., have been organized to manufacture and place upon the market the Taylor Sliding Jaw Pipe Wrench. The company feel confident from tests already made by plumbers, gas and steam fitters that the Wrench will be second to none now on the market. We are advised that propositions have already been received to take the entire output of the company.

SARGENT & Co., 149-153 Leonard street, New York, have just gotten out a series of cardboard display cards for dealers, in connection with their Gem Food Choppers, which they manufacture in various sizes, each having four sizes of cutters and one grinder for making nut paste. One of the cards, for panel advertising in surface and other railroad cars, is 11 x 21 inches in dimensions, representing on one end a boy with a market basket filled with various kinds of meats, vegetables, fish and other articles susceptible to being chopped when prepared for food. For store display, printed on both sides, there are three showcards to hang, 17½ x 9¾ inches, containing similar matter differently arranged, all of which are being sent out with the goods.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass., have moved their New York branch, in charge of E. R. Northrop, from 318 Broadway to 80 Chambers street, where they now carry a complete stock of the Stevens Firearms, including the finer grades of Target Rifles. They also have much better facilities for handling their trade as well as larger room space.

E. E. SCHOENING & BRO., wholesale and retail dealers in Hardware, Paints, &c., St. Louis, advise us that they have received the contract to furnish 11,000 square feet of Roofing Paper for the first permanent structure at the World's Fair, the Universal Amusement Company's building, against quite a number of competitors. The deal was handled by W. L. Schoening, a member of the firm, the contractors being B. S. McFarland & Co., Buffalo, N. Y. They have also secured the Hardware and Paint contract for the same building.

THE AMERICAN MFG. COMPANY, Battle Creek, Mich., are manufacturing Shipping Tags particularly well adapted for the iron and machinery trade, owing to their great strength. The company deal direct with the consumer, printing and wiring the Tags to order. They solicit correspondence from those who are looking for a good article, and who want substantial high grade Shipping Tags, Tag Envelopes, &c.

WALTER A. ZELNICKER, St. Louis, Mo., has recently been appointed the Western agent for the Cross Oil Filters, which are said to be gaining quite a reputation. He will be prepared to make shipments from stock or direct from factory. Mr. Zelnicker has also been appointed agent for the L. S. Starrett Company, Athol, Mass., manufacturers of fine Mechanical Tools.

ENTERPRISE MFG. COMPANY, Philadelphia, whose catalogue was noticed in our last issue, will be pleased to send copies of it to any in the trade on receipt of request.

PRICE-LISTS, CIRCULARS, &c.

GOODELL-PRATT COMPANY, Greenfield, Mass.: Folder relative to their Goodell Hack Saw Blades. The folder is entitled "Sharp as Lightning," which is doubtless intended to emphasize the cutting qualities of their Blades, which are sharpened and set by a process peculiar to the company.

CHISHOLM STEEL SHOVEL WORKS, Cleveland, Ohio: Illustrated catalogue No. 11 of their Shovels, Spades and Scoops. The company state that for the protection of their customers against such manufacturers as use the same list numbers their higher grades of Shovels, Spades and Scoops will hereafter have an additional label, reading "The Chisholm."

ILLINOIS WIRE COMPANY, Chicago, Ill.: Fencing and Gates. An illustrated price-list circular shows Lawn Fence and Gates, also Stock or Hog Fence. It is stated that the Stock Fence absolutely overcomes expansion and contraction, the cables being perfectly tight in both summer and winter.

THE VAN NOORDEN COMPANY, Boston, Mass.: Improved Metal Skylights. A pamphlet is devoted to illustrations of the constructive features of the company's Metal Skylights, in connection with a description of their points of excellence.

BUHL SONS & Co., Detroit, Mich., are sending to customers a large number of pages to be inserted in the firm's general catalogue. The pages contain additions, changes, &c., in the prices and goods carried by the firm.

RED JACKET MFG. COMPANY, Davenport, Iowa: Pumps. Catalogue No. 30, 216 pages, illustrates with list prices the company's Red Jacket Hand and Power Pumps, Tubular Well Valves, Cylinders and Rod Couplings, Well Supplies, Galvanized Pipe, &c.

PARRY MFG. COMPANY, Indianapolis, Ind.: Vehicles. An attractive printed pamphlet entitled "Cuts and Comments," which contains a few complimentary letters, together with "certain pictures of and paragraphs about" the Vehicles manufactured by the company.

MCCORMICK HARVESTING MACHINE COMPANY, Chicago: Catalogues illustrating and describing their well-known line of McCormick Agricultural Implements.

THE MICHIGAN BARREL COMPANY, Grand Rapids, Mich.: Catalogue of the Yukon, Economic and Chilkoot Refrigerators. The Yukon has 3 inches of insulation and eight walls. The Economic is solid ash, with both zinc lined and white enamel provision chambers and eight walls. The Chilkoot Refrigerators are offered to meet the demand for a moderate priced article, and are made of hard wood with golden oak finish and insulated with charcoal sheathing.

F. E. MYERS & BRO., Ashland, Ohio: Circulars calling attention to their Myers Well, Cistern, Wind Mill, Spray, Tank, Power Pumps, Cylinders, &c., also Myers Hay Carriers, Tracks, Forks, Slings, Pulleys, Hooks, Stayon Door Hangers, Store Ladders, Gate Hangers, &c.

AMONG THE HARDWARE TRADE.

E. M. Churchill & Co. have purchased Arthur Jones' Hardware business in Escondido, Cal.

W. B. Barstow, Manilla, Iowa, wholesale and retail dealer in Hardware, Stoves, Agricultural Implements, Sporting Goods, Buggies, &c., has been succeeded by Barstow & Sanders, who have just moved into a $13,000 brick building, giving them 8000 feet of floor space, and attractively and conveniently fitted up.

Owing to ill health J. E. Cooper, Hardware merchant, Manhattan, Kan., has found it necessary to withdraw from the business, which will be a source of regret to his friends in the trade.

Several months since B. B. Myers bought the stock of Ott Bros., Bucyrus, Ohio, the business being continued under the style of Bucyrus Cash Hardware Store. Mr. Myers also conducts a cash Hardware store at Nevada, Ohio, E. E. Fraise being the manager at that point. The line of goods carried at both stores embraces Hardware, Stoves, Tinware, Cutlery, &c.

Fred. D. Smith has bought the interest of Lester M. Burlison in the Hardware business of Tobey & Burlison, Sherburne, N. Y., and the style has been changed to Tobey & Smith. The store has recently undergone some radical improvements, including a new plate glass front, new office and a complete modification of the store interior.

Curtis & Powell, Linn Grove, Iowa, have been succeeded by C. F. Curtis, who has added materially to the stock formerly carried.

S. S. Allen has been succeeded in the Hardware and Stove business in Springview, Neb., by Allen & Pettit.

Wilson & Nagle are successors to Leech & Wilson in the Hardware, Stove and Tin business in Mechanicsville, Iowa. The new firm are putting in additional shelving and have also increased the storage room.

Evans & Dean have purchased G. W. Songer's Hardware business in Freeland Park, Ind. Mr. Songer will devote himself entirely to the grain, lumber and coal business.

Bond & Bours, Jacksonville, Fla., who embarked in the retail Hardware business three years ago, and have met with a good deal of success, have lately moved to new and finer quarters, consisting of two three-story buildings, one 24 x 114 feet and the other 30 x 100 feet, both connecting. The establishment has been equipped with new fixtures throughout. With their removal to the new quarters the firm have opened up a wholesale department and will soon send out salesmen to work Florida and parts of Georgia. Their line embraces Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements and Sporting Goods.

Chester Smith and Jacob Confer have organized the Confer & Smith Implement Company, Frankstown, Pa., who will conduct a retail business in Agricultural Implements, Wagons, Buggies, &c.

G. E. Clark, Eaton, N. Y., has disposed of his Hardware, Stove and Farm Implement business to A. H. Dresser, formerly of Lebanon. Mr. Dresser will add to the above lines the sale of Adamant, Plaster, Cement, &c.

W. M. Dailey & Son, Kennedy, N. Y., have removed their General Hardware and Stove stock to Falconer.

Edwin E. Rall has succeeded W. P. Dautel in the Shelf Hardware, Stove and Plumbing business, at Glasgow, Mo.

C. L. Fewell has admitted a partner in his Hardware and Stove business in Corsicana, Texas, and the style is now Fewell & Jester. They discount all their bills.

For the purpose of securing additional capital to carry on their business, which had increased beyond their ability to handle it, Bynum & Butcher, Ensley, Ala., have incorporated under the style of Bynum & Butcher, Incorporated. The company do a wholesale and retail business in Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements and Sporting Goods.

James H. Wiese Company, Eldridge, Iowa, have been incorporated with a capital of $25,000. The officers of the company are: James H. Wiese, president and treasurer; Peter Wiese, vice-president, and Frank Jungjohann, secretary. Mr. Wiese, who is also vice-president of the Eldridge Savings Bank, has been extensively engaged in the handling of Farm Machinery and Implements for a number of years and is well known throughout Scott County. The company will handle at retail a general line of Shelf Hardware and Agricultural Implements.

Baily & Rusk, Mt. Sterling, Ill., have decided to add a new and complete stock of Hardware to their former business as dealers in House Furnishing Goods, Stoves and Furniture. Leo Clark has purchased a third interest in the concern, and the style has been changed to Baily, Rusk & Clark. They are putting in new shelving in the old establishment, and are also building an addition, 40 x 50 feet, two stories high.

Brock Brothers, Cambridge, Mass., have for some time felt the need of more room for the several departments of their business. They have accordingly commenced an addition to their establishment, which will be 30 x 60 feet and two stories high. The material will be brick, to match the main structure. When the addition is completed it will enable the firm to make a rearrangement of their quarters, which will conduce to their own and their customers' convenience. It is expected that the addition, which will cost $5000, will be completed in three months.

T. R. Hayton's Hardware store, at Mt. Vernon, Wash., was recently robbed of $60 worth of Cutlery.

J. E. Ferguson Hardware Company, Kingman, Kan., have been incorporated with a capital of $20,000, succeeding Ferguson Bros. The stockholders of the new company are all members or employees of the old firm. The company will handle Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Sporting Goods, &c. J. E. Ferguson will manage the business.

G. W. Storey has succeeded A. H. Owens in the Hardware, Stove and Tinware business in Hedrick, Iowa.

A. F. Bergling has disposed of his Hardware business in Albert City, Iowa., to Lodin & Danielson.

John Buschers & Co. are successors to H. J. Oltrogge, dealers in Hardware, Stoves, Plumbing Supplies, &c., Waterloo, Iowa.

G. W. Gurley & Sons, Purdy, Mo., have been succeeded in the wholesale and retail Hardware, Stove, Agricultural Implement and Sporting Goods business by Gurley Bros.

S. M. Millard has sold his Hardware, Implement, Harness and Buggy business in Pawnee, O. T., to Mentzer Bros., who will continue at the old stand.

Thomas Hardware Company, Bedford City, Va., have lately taken possession of their fine new building, which is owned by members of the firm. There are two entrances to the store, one on Main street leading into the Stove and Tinware department, and the other on Bridge street, where General Hardware is carried.

P. C. Sheer has recently commenced business in Dover, Mo., handling Shelf Hardware, Stoves, Tinware, Agricultural Implements, Buggies, &c.

Jeffries & Son, Hardware and Stove merchants, David City, Iowa, have been succeeded by I. N. Jeffries.

J. C. Wright, a short time since, purchased the Hardware stock of A. H. Gould, Ashland, Neb. Mr. Wright subsequently sold a half interest in the business to J. H. Stone, late of Maitland, Mo., and the new firm, Wright & Stone, have added furniture, carpets, &c., to the former lines.

J. E. Emberson is successor to the Pondrom Hardware & Grain Company, Pilot Point, Texas.

Evans & Dean have bought out G. W. Songer, dealer in Hardware, Stoves, Farm Implements, &c., Hoopeston, Ill.

Callahan & Fonville have succeeded S. O. Callahan in the Hardware, Farm Implement and Buggy and Wagon business in Jacksboro, Texas. The stock has been removed to more commodious quarters in the Opera House Building, and they now have one of the finest storerooms in the city.

Thompson & Kelly, Columbus Junction, Iowa, have removed their Hardware stock to their own building, recently completed.

MISCELLANEOUS NOTES.

Rifle Telescopes.

J. Stevens Arms & Tool Company, Chicopee Falls, Mass., New York office, 80 Chambers street, have taken over the manufacture of rifle telescopes, which are made for any of the Stevens firearms, or can be fitted to rifles of any standard make. Their telescope department is under the direct supervision of F. L. Smith, formerly with the Cataract Tool & Optical Company, Buffalo, N. Y., who is not only an expert optician, but an optical instrument maker of 30 years' experience. They manufacture these telescopes entire, even to the grinding of the lenses, which enables them to furnish special telescopes to suit any requirements. The points of superiority to which the company draw special attention are apparent universal focus, perfect chromatic and spherical corrections, exceptionally large and flat field of vision, superior illumination, indestructible cross hairs, perfect definition, great variety of powers and adjustable mountings for elevation and windage. The lowest price telescope, called the Favorite, will be listed at $8, and fitted to the Favorite rifle the outfit complete will list at $14. The telescopes will be graduated in price from $8 to $14 list, and they are prepared to execute orders promptly.

Chapman Forges and Emery Grinding Machine.

H. L. Chapman, Marcellus, Mich., is taking special measures to bring the Chapman portable forges before the trade. These forges are classified under numbers. No. 1, with hood, is designed for heavy smithing; No. 2, with shield, for outdoor work, and No. 3 forge, with hood, for 7-inch pipe. A strong point in favor of these forges is claimed to be their extreme simplicity of construction, compact form, great strength and durability. The manufacturer is so confident of the product that he guarantees the forge to work and to be equal in every respect to representations made in his trade circular, and should any piece prove defective in material or workmanship it will be duplicated within one year from date of sale. Mr. Chapman has also issued a circular setting forth the merits of the Chapman foot power emery grinding machine. The aim of the manufacturer is to make a light machine yet strong, durable and thoroughly practical in the hands of the ordinary mechanic. The new machine was thoroughly tested before being put upon the market. The size of the machine on the floor is 16 x 24 inches; hight to top of table, 38 inches. The table is of hard wood, 15 x 22 inches. The frame is of cast iron, well braced; the fly wheel is 19½ inches in diameter, carries 1¼-inch belt, weighs nearly 40 pounds and makes from 200 to 250 turns per minute, giving a strong, steady motion. Weight of machine complete with head is about 120 pounds; shipping weight crated, 130 pounds.

Indian Head Repair Knobs.

J. E. Forsee & Son, 409 North Main street, St. Louis, Mo., are mounting repair knobs on cards, with a picture of an Indian's head in the center. The cards are 12 x 14 inches in size, with an easel back, so they can be used for display purposes. There are 49 knobs on each card, several different sizes being shown, and the cards are packed separately, each one in a box.

National and Nesco Oil Cans.

The National Enameling & Stamping Company are now making, at their Baltimore, Md., factory, the National corrugated oil can, of which illustrations are given herewith. Fig. 1 represents the National oil can with

Fig. 1.—Can with Spout.

Fig. 2.—Can with Faucet.

National Corrugated Oil Cans.

stamped fluted breasts, large screw caps of brass and a spout. These spouts are double seamed in the breasts and cannot be knocked off or staved in. The manufacturers state that these cans are made of the best quality of sheet steel and are galvanized after being put together. The corrugations of the bodies and breasts make the cans much stronger and more durable than the plain ones. Fig. 2 shows the can finished with an angle faucet instead of a spout. These cans are made of 1, 2, 3, 5 and 10 gallons capacity.

In Fig. 3 is shown the Nesco pump oil can, made of

Fig. 3.—Nesco Pump Oil Can.

sheet steel, galvanized and corrugated. It is provided with an improved removable suction pump, with long spout made of one piece, which can be adjusted to fill any ordinary lamp. The general construction is similar to that of the National cans. Special attention is directed to the fact that the pump is jointless and admits of a continuous flow of oil. When the can is not in use all the exposed parts are completely covered by a hinged dome cap. This style of can is made of 5 gallons capacity.

The Taintor Saw Set Improved.

The Taintor Mfg. Company, Wiebusch & Hilger, agents, 9-15 Murray street, New York, have made improvements in their No. 1900 Positive saw set, as shown in the accompanying cuts. In Fig. 1 the exterior appearance of the set is illustrated, while in Fig. 2 a portion of the shell is cut away, showing the improved construction of parts. The improvement consists in carrying the tail or lower part of the punch below the shell of the handle. This causes the punch to open and close with the corresponding movement of the lower handle. The spring now rests between the two handles instead of resting on the upper handle and the tail of the punch as heretofore. In use the jaw first comes forward by the action of the upper handle and grips the saw, when the punch is brought forward by the movement of the lower handle and sets the saw tooth. In Fig. 3 the manner in which the punch may be taken out is indicated by the dotted lines. To do this the anvil and the spring are first removed, when the punch is easily dropped out as indicated. To replace the punch the operation is reversed. After the anvil is put in place the punch cannot come out. This arrangement permits the taking out of a defective or broken punch in a moment, and as easily putting in a new one.

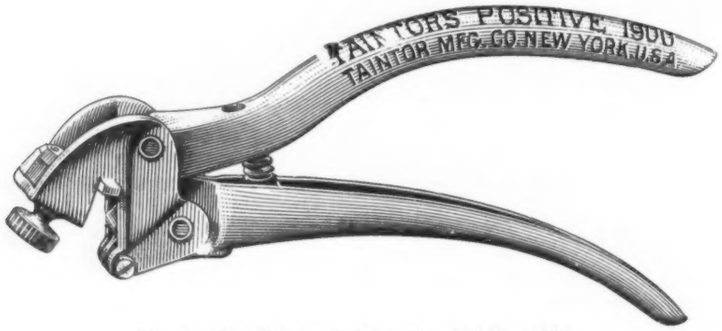


Fig. 1.—The Taintor Positive Saw Set No. 1900.

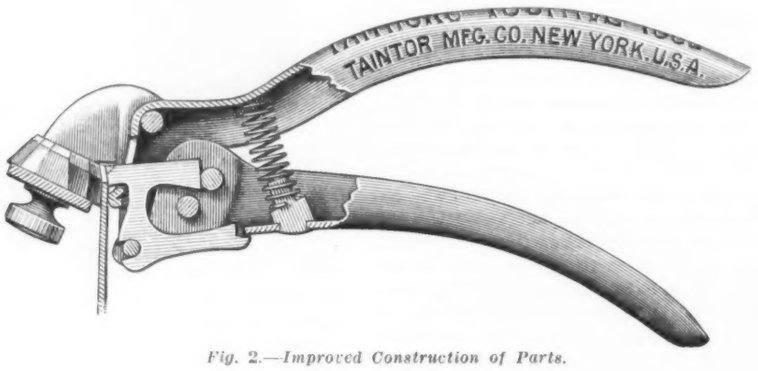


Fig. 2.—Improved Construction of Parts.

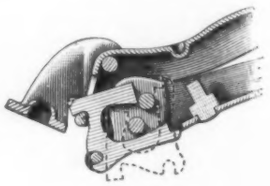


Fig. 3.—Removing the Punch.

Western Hardware Company, Spokane, Wash., have been succeeded by Goodsell-Wilson Hardware Company, who will continue the wholesale and retail business in Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Sporting Goods, &c.

The Twentieth Century Ventilated Lunch Box.

The accompanying cut represents a ventilated lunch box, put on the market by the Reading Saddle & Mfg. Company, Reading Pa. The interior of the cover is shown above the lunch box, the two small circles indicating the location of the ventilators. The manufacturers state that the material used in the construction of the boxes is the best from a sanitary point of view, and that the protected ventilators in the lid cause perfect circulation of air. The boxes are made in three size, as follows: 8¼ x 4¼ x 4¾; 9¾ x 4⅝ x 5½, and 11¼ x 5¼ x 6.

The following advantages are claimed by the makers over square cornered boxes: That the round ends prevent dirt lodging in corners, and allow the box to be thoroughly cleansed by lightly rubbing with a damp cloth or sponge; that they are no square corners to catch in clothing and therefore no scuffing as on square cornered boxes; that the water proof lining and special covering prevent grease showing on the outside, and that the shape of the box with rigid top and bottom causes it to be firm and to wear longer.

The Twentieth Century Ventilated Lunch Box.

Removable Blade Razor.

James H. Flagg Cutlery Company, 29 Murray street, New York, are the sole representatives in the United States for the sale of the patented removable blade razor of French manufacture here illustrated. In connection with this razor the point is especially emphasized that one handle with two blades of first quality can be bought for about the price of one good grade razor.

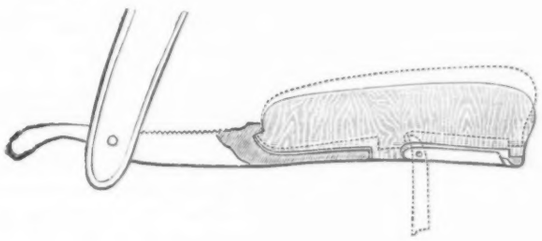


Fig. 1.—Patent Removable Blade Razor.

The thin blades of the razor are Damascus finished and handsome in appearance. By a movement of the hinged thumb piece or lever, indicated by the dotted line, the blade can be instantly removed or as easily replaced in position, when the lever is returned to its place, the razor then appearing much like one of the ordinary style. The razors are offered in various styles of cases, some of which are in fine real flexible leather, velvet lined, containing, according to the wants of the purchaser, 5, 7 or 12 blades, those having seven blades being etched with the name of each day of the week. Other outfits are furnished in strong and attractive

Fig. 2.—Two-Blade Razor and Case.

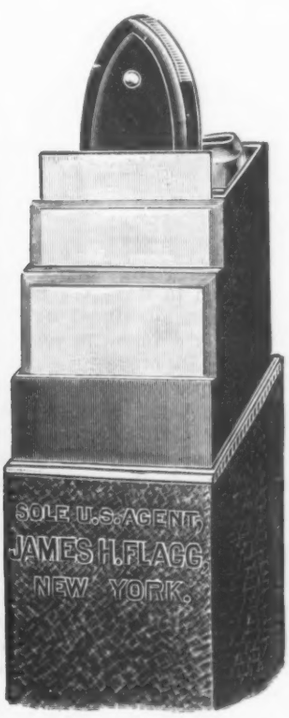


Fig. 3.—Four-Blade Razor and Case.

leather covered pasteboard cases containing either two or four blades. The advantage of this form of razor is that a blade can be quickly slipped in or out at will, without the use of screws or a tool of any kind, by merely raising the lever, introducing the blade and forcing it back in place again. Fig. 1 is a partial outline view of the razor, showing how the blade is inserted and removed, Figs. 2 and 3 showing the lower portions of two styles of cases.

The Cleveland Rapid Grinder.

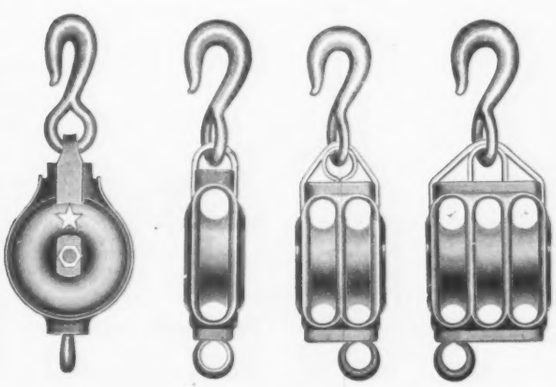
The Harris Mfg. Company, Cleveland, Ohio, are offering the coffee and spice mill shown herewith. The canister, which holds a pound of coffee, is screwed over the neck formed by the casting, and can in no way become

The Cleveland Rapid Grinder.

detached, it is explained, without loosening the screw at the lower part of the mill. The cup below can be detached easily, it is shown, by raising the slide at the back without spilling the contents, and when attached will not shake loose. The grinders are so constructed that all spices as well as coffee can be ground to any size required, by turning the wing nut at the back of the mill. The manufacturers state that the mill is well constructed, durable and efficient in operation.

Tarbox Metal Block.

Boston & Lockport Block Company, Boston, Mass., have recently put on the market a new metal block, known as the Tarbox metal block, illustrated herewith. The illustrations show a side view of the block, together with an edge view of the single, double and triple blocks.



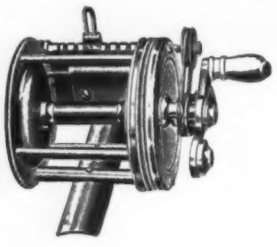
Side and Edge Views of Blocks.

The blocks are so constructed that the sheave has a side bearing only at the hub, thereby greatly reducing the friction and also keeping the edge of the sheave from becoming worn sharp, making it a very easy running common bushed block. The edges of the block, where the rope is liable to bear, are so rounded that they can in no way chafe or fray the rope. Smaller sizes are made with steel connections, joining shell with hook, while in the sizes 6 inches and larger heavy wrought iron straps extending below the pin and carrying the strain directly from the hook to sheave pin are used. The shell is so constructed where straps are employed that the strap in passing from the sheave pin to head of block passes first outside, then inside and then outside

again, so that where the strain is greatest the shell of the block is held most securely together. This is one of the latest features, and one for which recent application has been made for additional patents. This block is made in all sizes from 2 to 10 inches.

Independent Automatic Spooling Device.

The accompanying cut represents an independent automatic spooling device for fishing reels put on the market by A. W. Bishop & Son, Racine, Wis. The device can be applied independently to all round quadruple reels of any diameter, new or old, when the length of the reel between the heads is not less than 1¼ inches long or more

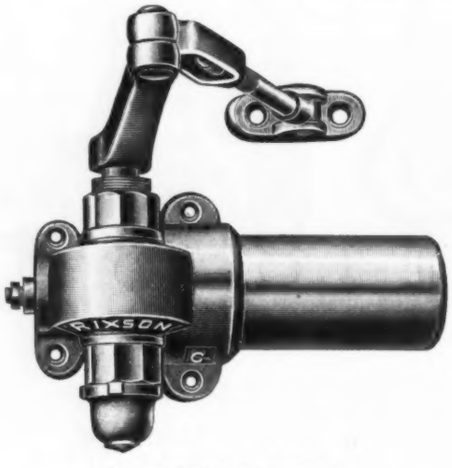


Independent Automatic Spooling Device.

than 1⅞ inches, and which have a clearance of 3-16 inch between the hub band and the oil cap, providing space for the small pulley. The device is alluded to as taking the entire care of line, winding it even and flat on the spool in any kind of fishing. It is pointed out that it requires next to nothing in power to operate the spooler, a small rubber band being more than sufficient to operate in any kind of service. This will yield, in case of accident to the spooler, and not break cogs by sudden stops, and not being connected by cog gear, fishing can be resumed by removing the band instead of laying up the reel for the day or until the spooler is repaired. The manufacturers state that the device can be attached by any one in five minutes without even making a scratch on the reel. The firm also manufacture reels like the one shown in the cut with the spooling device attached.

Rixson Door Check.

Oscar C. Rixson Company, 111-113 West Harrison street, Chicago, Ill., represented in New York by E. A. Grenzbach, 79 Reade street, have put on the market the Rixson door check, as here illustrated. This is a liquid door check in which is used a compounded oil that per-



Rixson Liquid Door Check.

forms its functions satisfactorily in a temperature as low as 40 degrees below zero, it is said. This check is adapted to right or left hand doors without any change in the mechanism. The checking is done against the solid bottom of the seamless pressed steel cylinder. The compression spring, as well as all parts of the interior fittings, are immersed in the checking oil at all times. It is stated that through the use of the seamless pressed steel cylinder the weight of the door check is less than that of many similar forms of door checks, while at the same time taking up a proportionately smaller space. The springs used in these checks are of the spiral compression variety and work in a seamless pressed steel cylinder in which the checking fluid and the working parts are contained. This check needs no exclusively right or left hand bracket and requires only a ¾-inch margin on the door frame. The checks are made in five sizes, lettered A, B, C, D and E, ranging in capacity from inside doors not over 2 feet 8 inches by 7 feet to extra heavy doors. They can be furnished in any of the usual finishes, including bronzed or dead black, plated unpolished bronze, brass, copper, nickel, antique brass, antique copper, and sand blast; also the same finishes in polished surfaces, together with solid bronze or brass, polished and unpolished. Some of the advantages claimed by the manufacturers are as follows: It is adapted to right or left hand doors without any change in the mechanism; even though the spring should be broken in several parts it remains effective; the check cannot be injured through an error of the mechanic in attaching it, because the main arm can be moved only in the right direction; the checking of the spring is transferred over no mechanism, only the solid piston head being between it and the checking fluid, causing, it is said, very little, if any, wear on the interior parts.

Oima Liquid Pistol.

Parker, Stearns & Sutton, 230 South street, New York, manufacturers of fine rubber goods, have just put on the market the Oima liquid pistol, here illustrated about two-thirds size. This pistol, recently patented, while

Oima Liquid Pistol.

designed to serve the same purpose as one of similar character introduced by them several seasons ago, is radically different in construction and a great improvement on its predecessor. The metallic part of this pistol is stamped from sheet metal, nickeled and polished, instead of being made of cast iron as heretofore, making it proof against breakage in case it is dropped. What has the appearance of a trigger is rigid and a part of the frame work, the pistol being discharged by pressure on the rubber bulb, as shown directly below and back of the trigger on the forward part of the stock. Inside of the frame work, the two portions of which are held together by a screw, is a rubber tube and bulb, the latter having a capacity of from 20 to 25 shots and a range of 20 to 25 feet. A small rubber tube runs clear down to the butt of the pistol, and one particular advantage of this construction over the previous pistol is that to discharge it requires simply a pressure on the bulb, while heretofore it was operated by pressing the bulb and working the trigger. This pistol is loaded by collapsing the bulb, holding it in a vessel of water and allowing it to slowly fill itself by releasing the pressure on the bulb. It is now so made that after the first shot it can be placed in the pocket with impunity, without any danger of moisture or leakage. It is 5 inches long over all and weighs but 1½ ounces. This pistol is intended for bicyclists, cashiers, for use at home to repel intruders, and is especially convenient for unescorted ladies. Plain water will turn a dog, or, as a weapon against anticipated danger, it can be loaded with a diluted solution of tincture of capsicum, although plain water is recommended and in most cases will answer the purpose.

Current Hardware Prices.

REVISED APRIL 29, 1902.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓@33⅓&10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent discount.

Cut Prices.—*In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 4, 1901), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, ₱ doz. $3.00....33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent.....25&5%
Taplin's Perfection.....25&5%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Arm and Hammer, Wrought ₱ lb 8½@8¾c
Beal Patent Trenton.....₱ lb 9½@9¾c
Eagle Anvils.....₱ lb 7¾@7¾c
Hay-Budden, Wrought.....9c@9¼c
Horseshoe brand, Wrought.....9c@9¼c

Imported—

Peter Wright's.....9¼@9¾c

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....20%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull Bros. Co.:
Lots of 1 doz.....25%
Smaller Lots.....20%
Lots of 3 doz.....30%

Augers and Bits—

Com. Double Spur.....70@70&10%
Boring Machine Augers...70@70&10%
Car Bits, 12-in. twist.....60@60&10%
Jennings' Pattern Auger Bits.....50&10&5@60%
Ford's Auger and Car Bits.....40&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list....40%
No. 30. R. Jennings' List.....50%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits 15&10@15&10&5%
Mayhew's Countersink Bits.....45%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....50&10%
Snell's Car Bits, 12-in. twist.....60%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—

Standard List.....65@65&5%

Expansive Bits—

Clark's small, $15; large, $26.....50&10%
Lavigne's Clark's Pattern, No. 1, ₱ doz., $26; No. 2, $18.....50&10%
C. E. Jennings & Co., Steer's Pat.....33⅓%
Swan's.....60%

Gimlet Bits—

Common Double Cut..gro. $2.25@2.75
German Pattern.....gro. $4.00@4.75

Hollow Augers—

Bonney Pattern, per doz. $11.00@11.50
Ames.....35&10%
New Patent.....35&10%
Universal.....30%
Wood's Universal.....35%

Ship Augers and Bits—

Ford's.....40%
Snell's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....15&10%
Watrous'.....40%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled.....gro. $2.75@3.10
Unhandled, Shouldered..gro.53@60c
Unhandled, Patent.....gro. 66@70c
Peg Awls:
Unhandled, Patent....gro. 31@34c
Unhandled, Shouldered..gro.65@70c
Scratch Awls:
Handled, Common..gro. $3.50@4.00
Handled, Socket..gro. $11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First Quality, factory brands....$6.00
First Quality, jobbers' brands....$5.75
Second Quality.....$5.00@5.25

Axle Grease—See *Grease, Axle.*

Axles—

Iron or Steel.

Concord, Loose Collar....4½@5c
Concord, Solid Collar....4½@5½c
No. 1 Common.....3½@3¾c
No. 1 ½ Com. New Style..3¾@4 c
No. 2. Solid Collar.....4¼@4½c
Nos. 11 to 14.....70@70&10%
Nos. 15 to 18.....75@75&10%
Nos. 19 to 22.....75@75&10%

2% cash 10 days.

Boxes, Axle—

Common and Concord, not turned.. lb. 4½@4¾c
Common and Concord, turned..... lb. 4¾@5c
Half Patent..... lb. 8@9c

Balances— Sash—

Caldwell new list.....50%
Pullman's.....60%

Spring—

Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%
Penguze.....50%

Barb Wire—See *Wire, Barb.*

Bars— Crow—

Steel Crowbars, 10 to 40 lb., per lb.. 2¾@3c

Beams, Scale—

Scale Beams, List Jan. 12, '82.40&10%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters— Egg—

Standard Co.:	₱ gro.
No. 0 Rapid	$4.50
No. 10 Dover Family Size	$8.00
No. 15 Dover Hotel Size	$15.00
Rival	$9.00

Taplin Mfg. Co.:	₱ gro.
No. 60 Improved Dover	$6.50
No. 75 Improved Dover	$7.50
No. 75-2 Imp'd Dover, Tin'd	$9.00
No. 100 Improved Dover	$8.00
No. 102 Improved Dover, Tin'd	$9.50
No. 150 Improved Dover, Hotel	$15.00
No. 152 Imp'd Dover, Hotel, Tin'd	$17.00
Lyon's, Standard size	₱ doz. $1.75
Wonder (S. S. & Co.)	₱ gro. $7.50

Bellows—

Blacksmith, Standard List.70@70&10%
C. E. Jennings & Co., Blacksmith..60&10%
C. E. Jennings & Co., Hand.....33⅓%

Blacksmiths—

Inch..	*30*	*32*	*34*	*36*	*38*	*40*
Each	*$3.50*	*3.75*	*4.25*	*4.80*	*5.35*	*6.15*

Extra Length:

Each	*$4.00*	*4.55*	*5.10*	*5.60*	*6.40*	*7.50*

Net Prices.

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*	*16*
Doz...	*$6.75*	*7.35*	*8.50*	*9.50*	*12.00*	*14.50*

Hand—

Inch...	*6*	*7*	*8*	*9*	*10*	*12*
Doz....	*$3.75*	*4.25*	*4.50*	*5.00*	*5.7*	*6.75*

Bells— Cow—

Ordinary goods.....75&5@75&10%
High grade.....70@70&10%
Jersey.....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Barton Gong.....55%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's....40@40&10%
Yankee Gong.....55%

Hand—

Hand Bells, Polished....60&5@60&10%
White Metal.....55@55&10%
Nickel Plated.....50@50&10%
Swiss.....60@60&7½%
Silver Chime.....33⅓@33⅓&10%

Miscellaneous—

Farm Bells..... lb. 2@2¼c
Steel Alloy Church and School..... 50&10&5@60%
National Bell Foundry Co.:
Superior Cast Steel Church and School Bells.....50&10&5@60%
Wilmot & Hobbs Mfg. Co., Gongs.....70%

Belting— Rubber—

Agricultural (Low Grade).75&10@80%
Common Standard.....75@75&10%
Standard.....70@70&10%
Extra.....60&10@60&10&5%
High Grade.....55&10@50&10&5%
Boston Belting Co.:
Seamless Stitched, Imperial.....45&5%
Boston.....50&5%
Niagara.....60&5%

Leather—

Extra Heavy, Short Lap..50&10@60%
Regular Short Lap.....60@60&5%
Standard.....60&10@65&10%
Light Standard.....65@70%
Leather Lacing.....60&10%

Cotton—

Rossendale-Reddaway B. & H. Co.:
Sphinx Brand.....60&10%
Durable Brand.....70%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters, No. 1, $3.75; No. 2, $6.50; No. 3, $9.50; No. 4, $14.75.

Bicycle Goods—

John S. Leng's Son's 1899 list:
Chains.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks— Tackle—

Common Wooden.....70@10@75%
Cleveland's Steel.....60&10@70%
Ford's Star Brand Self Lubricating.. 60&10%
Hollow Steel, Ford's Pat. Star Brand.. 50&10%
Lane's Patent Automatic Lock and Junior.....30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards Stove—

Zinc, Crystal, &c.....40@40&10%

Bolts—

Carriage, Machine &c.—

Common, list Feb. 1, '02.....60&5@...%
Norway Iron. $3.00, list Jan. 1, '98 80@80&5%
Phila. Eagle, $3.00 list May 24, '99.... 80@80&5%
Bolt Ends, list Feb. 14, '95...70&5@...%
Machine, list Oct. 1, '99.....65&5@...%
Machine with C & T. Nuts..... 65&7½@...%

NOTE.—*Jobbers are in many cases underselling the manufacturers.*

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz...	*$0.26*	*.30*	*.39*	*.47*	*.65*

Cast Iron Spring Foot:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.35*	*1.75*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.75*	*1.05*	*1.30*

Cast Iron Shutter, Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.57*	*.80*	*1.00*

Wrought Barrel Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz....	*$0.44*	*.50*	*.61*	*.70*	*1.28*

Wrought Barrel ....75&5@75&10&5%
Wrought " Bronzed.50&5@50&10%
Wrought Flush, B. K..50&10@60&10%
Wrought Shutter...40&10&10@60&5%
Wrought Square Neck.....50@50&10%
Wrought Sunk.....50@50&10%
Ives' Patent Door.....60%

Stove and Plow—

Plow.....60&5@...%
Stove.....77½%

Tire—

Common.....77½%
Norway Iron.....80@80&5%
American Screw Company:
Norway Philla., list Oct. 16, '84....82½%
Eagle Philla., list Oct. 16, '84.....85%
Bay State, list Dec. 28, '99.....77½%
Franklin Moore Co.:
Norway Philla., list Oct. 16, '84..82½%
Eagle Philla., list Oct. 16, '84.....85%
Eclipse, list Dec. 28, '99.....77½%
Port Chester Bolt & Nut Company
Empire, list Dec. 28, '99.....77½%
Keystone Philla. list Oct. '84.....85%
Norway Philla., list Oct. '84.....85%
Upson Nut Co.:
Tire Bolts.....77½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1⅝*	*1¾*	*2*
Per doz..	*$4.30*	*5.00*	*5.75*	*7.25*
Inch	*2¼*		*2½*	
Per Doz.....	*$8.65*		*11.50*	

Enterprise Mfg. Co., No. 1, $1.35; No. 2, $1.65; No. 3, $2.50 each.....25%

Boring Machines—See *Machines, Boring.*

Boxes, Mitre—

C. E. Jennings & Co.....40%
Seavey's, per doz., $30.....40%

Braces—

NOTE.—*Most Braces are sold at net prices.*

Common Ball, American...$1.15@1.35
Barber's.....50&10&10@60&10%
Fray's Genuine Spofford s.....60%
Fray's No. 70 to 120, 81 to 143, 207 to 414.....60%
C. E. Jennings & Co.....50&10%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Patent..50%
P., S. & W. Co. Peck's Pattent.....60&10@65&5%

Brackets—

Wrought Steel.....75&5@75&10%
Bradley's Wire Shelf:
Full cases.....80%
Broken cases.....75&10%
Griffin's Pressed Steel.....35%
Griffin's Folding Brackets.....70&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Wire Goods Co.....75%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—

B. & S.....₱ gro. $48.00
Hoosier.....₱ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts— Brass—

Wrought list Sept., '96.....40@40&5%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad.....50@50&10%
Fast Joint, Narrow.....50@50&10%
Loose Joint.....70&5@70&10%
Loose Pin.....70&5@70&10%
Mayer's Hinges.....70&5@70&10%
Parliament Butts.....70&5@70&10%

Wrought Steel—

Table and Back Flaps.....60%
Narrow and Broad.....60%
Inside Blind.....66&10%
Loose Pin.....60&10%
Loose Pin, Ball and Steeple Tip.....75%
Japanned, Ball Tip Butts...60%
Bronzed Wrt. Nar. and Inside Blind Butts.....45&20@45&25%

Extra 25@25&10%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....40&10%
Hendryx Bronze:
700, 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses.*

Calks. Toe and Heel—

Blunt, 1 prong.....per lb..3¼@4c
Sharp, 1 prong.....per lb... 4@4½c
Perkins' Blunt Toe.....₱ lb 3½c
Perkins' Sharp Toe.....₱ lb 4 c

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern.	$1 75	2.10	2.45	each.
Iowa Pattern...	....	2.40	2.60	each.
Buffalo Pattern.	....	2.40	2.50	each.
	20	30	40	qts.
New York Patt'rn	3.00	3.25	3.40	each.
Baltimore Patt'rn	2.50	2.85	3.10	each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$48.00	60.00	108 gro

Caps—Percussion—

Eley's E. B.	60c
G. D.	per M 32@34c
F. L.	per M 42@...c
G. E.	per M 47@50c
Musket	per M 62@...c

Primers—

Berdan Primers, $1.00 per M.....5%
B. L. Caps (Sturtevant Shells) $1.00 per M.....5%
All other primers per M. $1.22@$1.37

Carpet Stretchers—See *Stretchers, Carpet.*

Cartridges—
Blank Cartridges:
32 C. F., $5.50 ..... 10c&5%
38 C. F., $7 00 ..... 10c&5%
22 cal. Rim, $1.50 ..... 10c&5%
32 cal. Rim, $2.75 ..... 10c&5%
B. B. Caps, Con., Ball Swgd $1.90
B. B Caps, Round Ball $1.40
Central Fire 25%
Target and Sporting Rifle ..... 15c&5%
Primed Shells and Bullets ..... 15c&10%
Rim Fire Sporting 50%
Rim Fire, Military ..... 15c&5%

Casters—
Bed ..... 70c&10@70c&10c&5%
Plate ..... 75c&10@75c&10c&5%
Philadelphia ..... 75c&10@75c&10c&5%
Boss ..... 70&10%
Boss Anti-Friction ..... 70&10%
Martin's Patent (Phœnix) 45%
Payson's Anti-Friction ..... 70&10&10%
Standard Ball Bearing 45%
Tucker's Patent low list 30%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Coil—
American Coil, Jobbers' Shipments:

3/16	1/4	5-16	3/8	7-16	1/2	9-16
8.70	6.35	5.30	4.50	4.30	4.20	4.25
5/8	3/4	7/8	1 to 1¼ inch.			
4.10	4.15	4.15	4.15	per 100 lb.		

Less than Cask lots add 25c.
German Coil ..... 60&10c&10%

Haiters and Ties—
Halter Chains ..... 60c&10@60c&10c&10%
German Halter Chain, list July 25, '97 ..... 60c&10@60c&10c&10%
Cow Ties ..... 60@60c&5%

Trace, Wagon, &c.—
Traces, Western Standard: 100 pair
6½—6-3, Straight, with ring $30.00
6½—6-2, Straight, with ring $31.00
6½—8-2, Straight, with ring $35.00
6½—10-2, Straight, with ring $38.00
Add 2¢ per pair for Hooks.
Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains ..... 50c&10@50c&10c&5%

Miscellaneous—
Jack Chain, list July 10, '93:
Iron ..... 60c&10@60c&10c&10%
Brass ..... 60c&10@60c&10c&10%
Safety Chain ..... 70c&5@70c&10%
Gal. Pump Chain ..... lb. 4@4½c
Covert Mfg. Co.:
Breast ..... 35&2%
Halter ..... 35&2%
Heel ..... 35&2%
Rein ..... 35&2%
Stallion ..... 35&2%
Covert Sad. Works:
Breast 70%
Halter 70%
Fold Back 70%
Rein 70%
One da Community:
Am. Coll and Halters ..... 40@45&5%
Am. Cow Ties ..... 45&50%
Eureka Coll and Halter ..... 45@50&5%
Niagara Coll and Halters ..... 45@50&5%
Niagara Cow Ties ..... 45&5@50&10&5%
Wire Dog Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain ..... 60&10%
Universal Dbl-Jointed Chain 50%

Chalk—(From Jobbers.)
Carpenters' Blue ..... gro. 42@45c
Carpenters', Red ..... gro. 37@40c
Carpenters', White ..... gro. 33@35c
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—
Bardsley's ..... 40&10%
Columbia ..... 50&10%
Eclipse ..... 60@60&10%

Chests, Tool—
American Tool Chest Co.:
Boys' Chests, with Tools 55%
Youths' Chests, with Tools 40%
Gentlemens' Chests, with Tools 30%
Farmers', Carpenters', etc, Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty 50%
C. E. Jennings & Co.'s Machinists' Tool Chests 20%

Chisels—
Socket Framing and Firmer
Standard List ..... 70c&5@70c&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Socket Firmer No. 10 ..... 60&10%
C. E. Jennings & Co. Socket Framing No. 15 ..... 60&10%
Swan's ..... 70&5%
L. & I. J. White ..... 30@30&5%

Tanged—
Tanged Firmers ..... 40c&5@40&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Nos. 191, 181 ..... 25%
L. & I. J. White, Tanged ..... 25&5%

Cold—
Cold Chisels, good quality ..... lb. 13@15c
Cold Chisels, fair quality ..... lb. 11@12c
Cold Chisels, ordinary ..... lb. 8@9c

Chucks—
Beach Pat., each $8.00 ..... 20%
Massey's Planer and Milling ..... 15@20%
Skinner Patent Chucks:
Combination Lathe Chucks 40%
Drill Chucks, Patent and Standard 30%
Drill Chucks, New Model 2%
Independent Lathe Chucks 40%
Improved Planer Chucks 25%
Universal Lathe Chucks 40%
Face Plate Jaws 40%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination 40%
Car Drill 30%
Geared Scroll 30%
Independent 40%
Union Drill 30%
Universal 40%
Face Plate Jaws 35%

Clamps—
Adjustable, Hammers' ..... 20@20&5%
Cabinet, Sargent's ..... 50&10%
Carriage Makers', P., S. & W. Co. 40&10%
Carriage Makers' Sargent's ..... 50&10%
Besly, Parallel ..... 33⅓&10%
Lineman's, Utica Drop Forge & Tool Co 40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners Sidewalk—
Star Socket, All Steel ..... ₱ doz. $4.00 net
Star Shank, All Steel ..... ₱ doz. $3.75 net
W. & C. Shank, All steel, 7½ in. ₱ doz., $3.05; 8 in., $3.10; 8½ in., $3.25.

Cleavers, Butchers'—
Foster Bros 30%
New Haven Edge Tool Co.'s 40%
Fayette R. Plumb ..... 33⅓@33⅓&10%
P., S. & W ..... 50@50&5%
L. & I. J. White 25%

Clippers—
Chicago Flexible Shaft Company:
Handy Toilet ..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $8.40
Monitor Toilet ..... ₱ doz. $9.00
Stewart's Patent ..... ₱ doz. $10.00

Clips Axle—
Eagle and Superior ¼ and 5-16 inch ..... 70c&10%
Norway, ¼ and 5-16 inch ..... 70@70c&10%

Cloth and Netting, Wire—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Compression and Plain Bibbs ..... 65c&5@65c&10%
Globe, Kerosene, Racking, &c. ..... 65c&10@70%
Cocks ..... 65c&10@70%

Coffee Mills—See *Mills, Coffee.*

Collars Dog—
Brass, Pope & Stevens' list 40%
Embossed, Gilt, Pope & Stevens' list 30&10%
Leather Pope & Stevens' list 40%

Compasses Dividers, &c.
Ordinary Goods ..... 75@75c&5%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Call's Patent Inside 55%
Calipers, Double 65%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%
J. Stevens A. & T. Co ..... 25&10%

Compressors Corn Shock—
J. B. Hughes' ₱ doz $2.50

Conductor Pipe, Galva—
L. C. L. to Dealers:

Territory.	*Not nested.*	*Nested.*
Eastern	70c&2½&10%	70c&5&10%
Central	65c&10&1%	70c&10%
Southern	65c&10%	65c&2½&10%
S. Western	60c&12½&10%	60c&15&10%

Terms, 2% for cash.
Jobbers receive extra 12½&2½ on carloads loose, and extra 12½ on carloads crated.
See also *Eave Troughs.*

Coolers, Water—

Gal, each	2	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	2.20
Gal.	3	4	6	8	
Iceland, ea.	$1.80	$2.10	$2.40	$3.00	
Gal.	2½	3	4	6	8
Galv. Lined Ea.	$1.85	$2.00	$2.25	$2.90	$3.90

25%

Ga.v. Lined side handles Gal.	2	3	4	6	8
Each.	$1.95	$2.15	$2.40	$3.35	$4.15..25%

Coopers' Tools—
See *Tools, Coopers'.*

Cord—Sash—
Braided, Drab ..... lb. 25c
Braided, White, Com. ..... lb. 16½@17½c
Cable Laid Italian ..... lb. A, 18c; B, 16c
Common India ..... lb 9 @9½c
Cotton Sash Cord, Twisted ..... 12@16c
Patent Russia ..... lb. 12½@13c
Cable Laid Russia ..... lb. 13½@14c
India Hemp, Braided ..... lb 14@15c
India Hemp, Twisted ..... lb. 10@12c
Patent India, Twisted ..... lb. 10@12c
Pearl Braided, cotton ..... ₱ lb 17½¢
Massachusetts, White ..... ₱ lb 22½¢
Massachusetts, Drab ..... ₱ lb 26½¢
Eddystone Braided Cotton ..... ₱ lb 19¢
Harmony Cable Laid Italian ..... ₱ lb 18¢
Ossawan Mills:
Crown, Solid Braided White ..... ₱ lb 22¢
Braided, Giant, White ..... ₱ lb 20¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 14¢
Cable Laid India ..... 12¢
Braided India ..... 18¢
Phœnix, White ..... 19¢
Samson, Nos. 7 to 12:
Braided, Drab Cotton ..... ₱ lb 32½¢
Braided, Italian Hemp ..... ₱ lb 33½¢
Braided, Linen ..... ₱ lb 49¢
Braided, White Cotton, Spot ₱ lb 28½¢
Nos. 6 to 8, 1¢ extra.
Silver Lake:
A quality, Drab, 40¢ 15%
A quality, White, 35¢ 15%
B quality, Drab, 35¢ 15%
B quality, White, 30¢ 15%
Italian Hemp, 40¢ 15%
Linen, 57½¢ 15%

Wire, Picture—
List Oct. 1, 03, 85c&10+10+8.5c&10+10+5%
Note.—There is a good deal of confusion in lists, some using old list and others the above list.

Corn Knives and Cutters—See *Knives, Corn.*

Corn Planters—See *Planters, Corn.*

Crackers, Nut—
Little Giant ..... ₱ gr. $24.00

Cradles—
Grain 50%

Crayons—
White Round Crayons, gross ..... 5½@6c
Cases, 100 gro., $4.50, at factory.
D. M. Steward Mfg. Co.
Metal Workers' Crayons, gr. $2.50
Soapstone Pencils, round, flat or square ..... gr. $1.50
Rolling Mill Crayons ..... gr. $2.50
Railroad Crayons (composition) gr. $2.00
Case lots 20%
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—
Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden ..... ₱ doz. $10.00

Cutlery, Table—
International Silver Company:
No. 12 Medium Knives, 1847, ₱ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor ..... ₱ doz $3.00
Wm. Rogers & Son ..... ₱ doz. $2.50
Simeon L. & Geo. H. Rogers Company, 12 dwt. Medium Knives ..... ₱ doz. $3.00
No. 77 Medium Knives ..... ₱ doz. $2.50

Cutters—Glass—
H. H. Mayhew Co 40%
Smith & Hemenway Co 50%

Meat—
Hale's, Nos. 11 & 111 12 & 112 13 & 113

Per doz ..	*$9.50*	*12.50*	*16.00*

American 30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Connecticut 50%

No.	20	40	60	8	10	12
Each	$1.75	2.00	2.25	3.00	3.50	4.00

Enterprise ..... 25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.50	$4	$6

Dixon's, ₱ doz ..... 30&10@40%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Home No. 1, ₱ doz. $22.75 ..... 50&10%
Little Giant, ₱ doz ..... 33⅓&5@40%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

Sterling ..... 33⅓&5%

Nos	1	2
Each	$2.00	$2.50

New Triumph No. 605, ₱ doz. $24.00 ..... 30&10@40%
Woodruff's, ₱ doz ..... 30&10@40%

Nos	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—
Henry Disston & Sons:
Slaw, Corn Grater, &c 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9 ..... 55%
Kraut Cutters 36 x 12, 40 x 12 ..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife, ₱ gr. ..... $18@$20
Slaw Cutters, 2 Knife, ₱ gr. ..... $22@$36

Tobacco—
All Iron, Cheap ..... doz. $4.25@$4.50
Enterprise ..... 25@50%
National, ₱ doz. $21.00 ..... 40%
Sargent's, ₱ doz., No. 2 ..... 45&10%
Sargent's No. 12 and 21 ..... 50&10%

Washer—
Appleton's, ₱ doz. $16.00 ..... 50&10&10%
Bonney's 40%

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger ..... per doz., $9.00
Iwan's Improved Post Hole Auger 40%
Iwan's Perfection Post Hole Digger ..... ₱ doz. $9.00
Kohler's Universal ..... ₱ doz. $14.00
Kohler's Little Giant ..... ₱ doz. $14.00
Kohler's Hercules ..... ₱ doz. $12.00
Kohler's Invincible ..... ₱ doz. $10.00
Kohler's Rival ..... ₱ doz. $9.00
Kohler's Pioneer ..... ₱ doz. $9.00
Never-Break Post Hole Diggers, ₱ doz. $24.00 ..... 60%
Samson, ₱ doz. $34.00 ..... 25%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—
See *Checks, Door.*

Door Springs—
See *Springs, Door.*

Doors, Screen—
Porter's Plain, No. 6 ..... ₱ doz. $6.50
Porter's Ornamental, No. 70, ₱ doz. $10.00

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Drills and Drill Stocks—
Common Blacksmiths' Drill ..... each $1.50@$1.75
Blacksmiths' Self-feeding ..... each $3.75@4.00
Breast, Millers Falls, each $3.00 ..... 10&10%
Breast, P., S. & W ..... 40@40&5%
Goodell Automatic Drills ..... 40&5@40&10%
Jones & Lamson's Automatic Drills Nos. 2 and 3 ..... 16⅔%
Johnson's Drill Points ..... 25&10%
Ratchet, Curtis & Curt's 25%
Ratchet, Parker's 40%
Ratchet, Weston's ..... 20@25%
Ratchet, Whitney's, P. S. & W 50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—
Standard List ..... 60c&10@60c&10c&10%

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—
See *Pans, Dripping.*

Drivers, Screw—
Screw Driver Bits ..... per doz. 45@70c
Balsey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9 ..... 40%
Buck Bros 30%
Buck Bros' Screw Driver Bits 30%
Champion ..... 40&10%
Douglass Mfg. Co ..... 20@20&10%
Fray's Hol. H'dle Sets, No. 3, $12.00 ..... 50%
Gay's Double Action Ratchet 33%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Mayhew's Black Handle 50%
Mayhew's Monarch ..... 40&10%
New England Specialty Co ..... 50&10%
Sargent & Co.'s:
Nos. 1, 50, 55 and 60 ..... 50&10&10%
Nos. 20 and 40 ..... 66⅔&10%
Smith & Hemenway Co ..... 40&5%
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles ..... 30@70&10&10%
No. 86 ..... 70@70&10&10%
Swan's:
Nos. 65 to 68 ..... 50%
No. 49 ..... 40&10%
Nos. 25, 35 and 45 ..... 30&10&10%

Eave Trough Galvanized

Territory.	*C. L.*	*L. C. L.*	
Eastern	75c&10	10%	Carloads extra 12½%
Central	75c&7½	10%	
Southern	70c&7½	10%	
S. Western	70c&10	10%	

Terms, 2% for cash.
See also *Conductor Pipe and Elbows.*

Egg Beaters—See *Beaters, Egg*
Egg Openers—
See *Openers, Egg.*

Elbows and Shoes—
Factory shipments 60%
Perfect Elbows (S. S. & Co.) 40%

Emery, Turkish—

	4 to 46	*5 to 150*	*Flour*
Kegs ..... lb.	5c	5½c	3½c
½ Kegs ..... lb.	5½c	5¾c	3¾c
Kegs ..... lb	5c	6c	
10-lb cans, 10 in case	6¼c	7c	6c
10-lb. cans, less than 10	10c	10c	8c

NOTE.—*In lots 1 to 3 tons a discount of 10% is given.*

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—
See *Pins, Escutcheon.*

Extractors, Lemon Juice—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's ..... 50&10%

Faucets—
Cork Lined ..... 70c&5@70c&10c&5%
Metallic Key, Leather Lined ..... 70%@70c&10%
Red Cedar ..... 60@50c&10%
B. & L. B. Co.:
Lockport, Metal Plug, reduced list 60&5%
Star ..... 60@60&5%
Star, Metal Plug new list ..... 40@40&5%
West's Lock, Open and Shut Key 50&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's Victor Metal Key 50&10%
John Sommer's Duplex Metal Key 60%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined 50%
John Sommer's Reliable Cork Lined ..... 50&10%
John Sommer's Chicago Cork Lined 60%
John Sommer's O. K. Cork Lined 50%
John Sommer's No Brand, Cedar 50%
John Sommer's Perfection Cedar 40%
McKenna, Brass:
Burglar Proof, N. P 35%
Improved, ¾ and ⅞ inch 35%
Self Measuring:
Enterprise, ₱ doz. $30.00 ..... 40&10%
Lane's, ₱ doz. $36.00 ..... 40&10%
National Measuring, ₱ doz. $36.00 ..... 40%

Felloe Plates—
See *Plates, Felloe.*

Files—Domestic—
List revised Nov. 1, 1899.
Best Brands ..... 70c&5@70c&10%
Standard Brands ..... 75@75c&10c&5%
Second Quality ..... 75c&10c&10@80c&5%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97 ..... 25%

Fixtures, Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*	*24*
Per doz.	*$2.60*	*2.75*	*3.00*	*3.50*	*4.40*

P., S. & W. Co ..... 50@50&5%
Reading Hardware Co 60%
Sargent's ..... 60&10&10%
Stowell's Giant Grindstone Hanger, ₱ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy ..... 50&10&10%
Stowell's Grindstone Fixtures Light ..... 60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
Sept. 1, 1900, list.
Grain or Barley Forks, 16 to 20 inches ..... 70c&6%
Hay, 2 tine 65%
Hay, 3 tine 66⅔%
Hay, 4 tine, Header and Barley Forks, 13 to 16 inches 66⅔%
Manure, 4 tine 70%
Manure, 5 and 6 tine 70%
Spading ..... 70c&5%
Extra 10c&5@30%
Iowa Dig-Ezy Potato 65%
Victor, Hay 66⅔%
Victor, Manure 70%
Victor, Header ..... 60&30%
Champion, Hay 66⅔%
Champion, Manure 70%
Columbia, Hay ..... 66⅔&5%
Columbia, Manure 70%
Columbia, Spading 70%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
W. & C. Potato Digger 65%
Acme Hay ..... 60&10&7½%
Acme Manure, 4 tine ..... 60&20&10%
Acme Manure, 6 tine ..... 66⅔&10&2%
Dakota Header ..... 65&15&5%
Jackson Steel Barley ..... 65&15&5%
Kansas Header 66⅔%
W. & C. Favorite Wood Barley 4 tine, ₱ doz., $5.00; 6 tine, $6.00
Plated.—See *Spoons.*

Frames—Saw—
Red, Polished and Varnished ..... doz. $1.15@$1.35
White ..... doz. 75@90c

Screens and Frames—
See *Screens.*

Freezers Ice Cream—
Qts ... 2 3 4 6 8 10
Best ... $1.45 1.65 1.95 2.40 3.20 4.20
Good ... $1.25 1.40 1.70 2.15 2.75 3.75
Fair ... $1.00 1.10 1.30 1.75 2.25 2.90

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—
Per 1000 Feet.
Hemp Fuse $2.60
Cotton Fuse 2.90
Single Taped Fuse 3.25
Double Taped Fuse 4.50
Triple Taped Fuse 5.00
10c&25%

Gates, Molasses and Oil-

Stebbins' ..... 80@80&10%

Gauges—

Marking, Mortise, &c. ..... 55&10@55&10@10%

Barrett's Comb. Roller Gauge ..... ₱ doz. $6.75@7.25

Stanley R. & L. Co.'s Butt & Babbet Gauge ..... 20@20&10@10%

Wire, Brown & Sharpe's 25%

Wire, Morse's 25%

Wire P., S. & W. Co ..... 30@30&10%

Gimlets— Single Cut—

Nail, Metal, Assorted, gro. $1.40@1.60

Spike, Metal, Assorted gro. $2.80@3.25

Nail, Wood Handled, Assorted, gro. $1.75@2.00

Spike, Wood Handled, Assorted gro. $3 25@3.50

Glass, American Window

Jobbers' List, Jan. 21, 1901.

From store ..... 90&10%

F. O. B. factory, carload lots:

Single strength ..... 90&10&7½%

Double strength ..... 90&10&10%

Glue—Liquid, Fish—

List A, Bottles or Cans, with Brush. 37½@50%

List B, Cans (½ pts., pts., qts.) ..... 33⅓@48%

List C, Cans (½ gal., gal.) ..... 25@45%

International Glue Co. (Martin's) ..... 40&10@50%

Glue Pots—See *Pots, Glue.*

Grease, Axle—

Common Grade ..... *gro.* $5.00@6.00

Dixon's Everlasting ..... 10-₱ pails, ea. 85¢

Dixon's Everlasting, in bxs.. ₱ doz. 1 ₱ $1.20; 2 ₱ $2.00

Snow Flake: 1 qt. cans, per doz. $2.00; 2 qt., $3.20; 1 gal. cans per doz. $6.00; 3 gal. $16.00; 5 gal. $24.00 } 10%

Grindstones—

Bicycle Emery Grinder $6.50

Bicycle Grindstones, each ..... $2.50@3.00

Pike Mfg. Co:

Improved Family Grindstones, per inch, per doz. ..... $2.00 }

Pike Mower Knife and Tool Grinder, each ..... $6.00 } 33⅓%

Velox Ball Bearing, mounted, Angle Iron Frames ..... each, $3.25

Guards, Snow—

Cleveland Wire Spring Co.:

Galv. Steel ₱ 1000 ..... $9.00

Copper ₱ 1000 ..... $18.00

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl— *gro.*

Peg Patent, Leather Top ..$4.90@5.25

Peg Patent, Plain Top ....$3.50@3.75

Sewing, Brass Ferrule ....$1.50@1.60

Saddlers', Brass Ferrule ..$1.35@1.45

Peg, Common ..... $1.25@1.35

Brad, Common ..... $1.50@1.75

Halters and Ties—

Covert Mfg. Co.:

Web ..... 45&2%

Jute Rope ..... 45&2%

Sisal Rope ..... 30&2%

Covert's Saddlery Works:

Web and Leather Halters 70%

Jute and Manila Rope Halters 70%

Sisal Rope Halters ..... 60&20%

Jute, Manila and Cotton Rope Ties.. 70%

Sisal Rope Ties ..... 60&20%

Hammers—

Handled Hammers—

Heller's Machinists' ..... 50@50&5%

Heller's Farriers ..... 50@50&5%

Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40@40& 0&10%

Peck, Stow & Wilcox ..... 50&10%

Fayette R. Plumb:

Plumb, A. E. Nail ..... 33⅓&5@33⅓&10&5%

Engineers' and B. S. Hand ..... 50&10&7½@50&10&10&7½%

Machinists' Hammers ..... 50&10@50&10&10%

Riveting and Tinners' ..... 40&7½@40&10&7½%

Sargent's C. S. New List 45%

Heavy Hammers and Sledges—

3 lb. and under ..*lb.* 45*c* } 75¢&10¢5 @..%

3 to 5 lb ..... *lb.* 36*c* }

Over 5 lb ..... *lb.* 30*c* }

Wilkinson's Smiths' .....9½¢@10¢ lb.

Handcuffs and Leg Irons

See *Police Goods.*

Handles—

Agricultural Tool Handles—

Axe, Pick, &c. ..... *.50@50&10&5%*

Hoe Rake, Fork, &c. .....60@60&5%

Shovel, &c., Wood D Handle 50¢&1 @40%

Cross-Cut Saw Handles—

Atkins' ..... 40&5%

Champion ..... 45@45&10%

Disston' 50%

Mechanics' Tool Handles—

Auger, assorted .....*gro. $2.50@2.50*

Brad Awl ..... *gro.* $1.25@1.50

Chisel Handles:

Apple Tanged Firmer, gro. ass'd. $2.25@$2 35; large, $2.50@$3.00.

Hickory Tanged Firmer, gro. ass'd $1.75@$2.20; large, $3 50@$3.70.

Apple Socket Firmer, gro ass'd, $1 70@$1.85; large, $2 00@$2 25

Hickory Socket Firmer, gro ass'd, $1.60 @ $1.75; large, $1.75 @ $2.00

Hickory Socket Framing, gro. ass'd, $2.50@$2.75; large, $2.65@$2.85

File, assorted .....*gro. $1.00@$1.15*

Hammer, Hatchet, Axe, &c. 80%

Hand Saw, Varnished, doz. 70@75c

Not Varnished ..... *55@60c*

Plane Handles:

Jack, doz. 25c; Jack Bolted ..*55@60c*

Fore, doz. 35@38c; Fore, Bolted .. 70@75c

Nicholson Simplicity File Handle, ₱ gro. ..... $0.85@$1.50

Hangers—

Barn Door, New Pattern, Round Groove, Regular:

Inch	*3*	*4*	*5*	*6*	*8*
Doz	$0.85	1.20	1.50	1.90	2.30

Barn Door, New England Pattern, Check Back, Regular:

Inch	*3*	*4*	*5*	*6*
Doz	$1.30	1.75	2.25	3.00

Chicago Spring Butt Co.:

Friction 25%

Oscillating 25%

Big Twin 25%

Chisholm & Moore Mfg. Co.:

Baggage Car Door 50%

Elevator 40%

Railroad 55%

Columbian Hdw. Co.:

American Trackless ..... 33⅓&10%

Cronk Hanger Co.:

Loose Axle 60%

Roller Bearing ..... 60&10%

Lane Bros. Co.:

Parlor, Ball Bearing $4.15

Parlor, Standard $3.35

Parlor, New Model $2.85

Parlor New Champion $2.30

Barn Door, Standard 50&10&10&5%

Covered ..... 50&10&10%

Special ..... 50&10&10&5%

Lawrence Bros.:

Advance 60%

Cleveland 70%

Crown 60%

New York 60%

Peerless ..... 60&10%

Sterling 60%

McKinney Mfg. Co.:

No. 1, Special, $15 ..... 60&10%

No. 2, Standard, $18 ..... 60&10%

Myers' Stayon Hangers and Track, 50&10% (net)

Stowell Mfg. and Foundry Co.

Acme Parlor Ball Bearing 40%

Atlas 60%

Badger Barn Door 50%

Baggage Car Door 50%

Climax Anti-Friction 50%

Elevator 40%

Express 50%

Interstate 60%

Lundy Parlor Door 50%

Magic 50%

Matchless 60%

Nansen ..... 60&10%

Railroad 50%

Street Car Door 50%

Steel, Nos. 300, 404, 500 ....40&15%

Stowell Parlor Door 50%

Wild West, Nos. 303, 404, 500 ..... 5%

Zenith for Wood Track 50%

Taylor & Boggis Foundry Co.:

Ridder's ..... 50&15&10&5%

Wilcox Mfg. Co.:

Bike Roller Bearing ..... 60&10%

C. J. Roller Bearing ..... 60&10%

Cycle Ball Bearing 50%

Dwarf Ball Bearing 40%

Ives, Wood Track ..... 60&10%

L. T. Roller Bearing ..... 60&10&5%

New Era Roller Bearing ..... 50&10%

O. K. Roller Bearing ..... 60&10&5%

Prindle, Wood Track 60%

Richards' Wood Track 60%

Richards' Steel Track ..... 50&10%

Spencer Roller Bearing ..... 60&10%

Tandem Nos. 1 and 2 ..... 60%

Underwriters' Roller Bearing 40%

Velvet 50%

Wilcox Auditorium Ball Bearing 20%

Wilcox Barn Trolley No. 123 ..... 40%

Wilcox Elevator Door Hangers, Nos 112 and 122½ 50%

Wilcox Elevator Door Hangers, No. 132 ..... 40%

Wilcox Fire Trolley, Roller Bearing 30%

Wilcox Le Roy Noiseless Ball Bearing 40%

Wilcox New Century ..... 50&10&10%

Wilcox O. K. Steel Track 50%

Wilcox O. K. Trolley 50%

Wilcox Trolley Ball Bearing 40%

Wilcox Wideman Narrow Gauge, Ball Bearing 40%

Extra 5&10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—

McKinney's Perfect Hasp ₱ doz. 50%

Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—

Best Brands ..... 50@50&10%

Cheaper Brands ..... 60@60&10%

Note.—Net prices often made.

Hay and Straw Knives—

See *Knives.*

Hinges—

Blind and Shutter Hinges—

Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No	*1*	*3*	*5*
Doz. pair	$0.75	1 45	2.90

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No	*1*	*1½*	*2*	*2½*
Doz. pair	$0.60	.55	.52	.45

Mortise Reversible Shutter, (Buffalo, &c.)

No	*1*	*1½*	*2*
Doz. pair	$0.65	.60	.55

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ..... 10%

Parker ..... 70&75%

Reading's Gravity ..... 75&10%

Sargent's, Nos. 1, 3, 5, 11 & 13 ..... 70&10&70&20%

Stanley's Steel Gravity Blind Hinges, ₱ doz. sets, without screws, $0.80; with screws, $1.15.

Wrightsville H'dware Co.:

O. S. Lull & Porter ..... 80&2½%

Acme, Lull & Porter ..... 75&10%

Queen City Reversible ..... 75&10%

Stenger's Positive Locking, Nos. 1 & 3 ..... 70&10&5%

Shepard's Noiseless, Nos. 60, 65, 55 ..... 70&10%

Niagara, Gravity Locking, Nos. 1, 3 & 5 ..... 75&7½%

1868, Old Pat'n. Nos. 1, 3 & 5. ..75&7½%

Tip Pat'n, Nos. 1, 3 & 5 ..... 75&7½%

Buffalo Gravity Locking, Nos. 1, 3 & 5 ..... 75&7½%

Shepard's Double Locking, Nos. 20 & 25 ..... 70&10%

Champion Gravity Locking, No. 75.. 75&7½%

Steamboat Gravity Locking, No. 10,.. 75&7½%

Pioneer, Nos. 060, 45 & 5½ .....75&7½%

Empire, Nos. 101 & 103 ..... 70&7½%

W. H. Co.'s Mortise Gravity Locking, No. 2. ..... 60&10%

Gate Hinges—

Clark's or Shepard's—Doz. sets:

No	*1*	*2*	*3*
Hinges with Latches	$1.80	1.90	2.65
Hinges only	$1.20	1.50	2.00
Latches only	.60	.60	.65

New England:

With Latch .....doz ....@$1.55

Without Latch ...doz. ....@$1.25

Reversible Self-Closing:

With Latch .....doz. ....@$1.80

Without Latch .....doz. ....@$1.45

Western:

With Latch .....doz. *$1.40@1.75*

Without Latch .....doz. *$0.95@1.50*

Wrightsville H'dware Co.:

Shepard's or Clark's, doz. sets,

No.	1	2	3
Hinges with Latches	$1.80	2.00	2.75
Hinges only	1.20	1.50	2.10
Latches only	.65	.65	.70

Spring Hinges—

Holdback, Cast Iron, gro. $8.00@8 70

Non-Holdback, Cast Iron gro $7@7.50

J. Bardsley

Bardsley's Patent Checking 15%

Bommer Bros.:

Bommer Ball Bring Floor Hinges 40%

Bommer Spring Hinges 40%

Chicago Spring Butt Co.:

Chicago 25%

Floor Hinge 50%

Garden City Engine House 25%

Keene's Saloon Door 25%

Triple End 50%

Columbian Hdw. Co.:

Acme, Wrt. Steel 30%

Acme, Brass 20%

American 30%

Columbia, No. 14 ..... ₱ gr. $9.00

Columbia, No. 18 ..... ₱ gr. $25.00

Columbia, Adjustable 30%

Gem new list 25%

Clover Leaf ..... ₱ gr. $12.50

Oxford new list 25%

Hoffman Hinge & Foundry Co., No. 70 & 80 Holdback Detachable $8.50

Lawson Mfg. Co.:

Matchless 35%

Matchless Pivot 45%

Payson Mfg. Co.:

Oblique ..... 50&10%

Shelby Spring Hinge Co.:

Crown Jamb Hinge 40%

Chief Ball Bearing Floor Hinge..45%

Royal Ball Bearing Floor Hinge..45%

Stover Mfg. Co.:

Ideal, No. 16, Detachable, ₱ gr $12.50

Ideal, No. 4 ..... ₱ gr. $9.00

New Idea No. 1 ..... ₱ gr. $9.00

New Idea, Double Acting 45%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar. 15, 1901:

Light Strap Hinges 70%

Heavy Strap Hinges .. 75¢10%

Light T Hinges ..... 60¢&5%

Heavy T Hinges ..... .60¢&5%

Extra Heavy T Hinges ...75% } Extra 25@25¢&25%

Hinge Hasps 55%

Cor. Heavy Strap ..... 75¢10%

Cor. Ex. Heavy T 75%

Screw Hook and Strap: *6 to 12 in* ..... *lb.* 3½*c*; *14 to 30 in* ..... *lb.* 3 *c*; *32 to 36 in* ..... *lb.* 2¾*c*

Screw Hook and Eye:

¾ to 1 inch ..... *lb* 5 *c*

⅝-inch ..... *lb* 6 *c*

½-inch ..... *lb.* 7 *c*

Miscellaneous—

Hoffman's Steel Spring Butt Hinges ..... 40&10%

Hoffman's Offset Refrigerator Hinges .. 40&10%

Hods, Coal—

Inch	*15*	*16*	*17*	*18*
Galv. Open	$2.70	3.00	3.30	3 60
Jap. Open	$2.10	2.50	2.70	3.00
Galv. Funnel	$3.30	5.60	5.90	4 20
Jap. Funnel	$2.70	3 00	3.30	3.60

₱ doz.

Hoes— Eye—

Scovil and Oval Pattern ..... 60¢&5@60¢&10¢&5%

Grub, Hat Feb. 23, 1899 .... 70@70¢&10%

D. & H. Scovil 35%

Handled—

Sept. 1, 1900, List:

Field and Garden ..... 75¢&2%

Ladies', Boys', Toy and Onion ... 70¢&10¢&10%

Street and Mortar ..... 75¢&7½¢&2%

Cotton ..... 70¢&10¢&10¢&5¢&2%

Planters' ..... 70&30%

Weeding 75%

Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.

Ft. Madison Crucible Garden Hoe ..... 75&2%

Ft. Madison Crescent Cultivator Hoe, per doz ..... 75&10&2%

Ft. Madison Maltock Hoes:

Regular Weight ..... ₱ doz. $4.50

Junior Size ..... ₱ doz. $4.00

Ft. Madison Sprouting Hoe, ₱ doz. $4.80

Ft. Madison Dixie Tobacco Hoe.. 75&20%

Kretsinger's Cut Easy, per doz.... 75&2%

Warren Hoe 60%

W. & C. Ivanhoe ..... 75&2%

B. B. Cultivator Hoe ..... 75&10&2%

Acme Weeding ..... 75&10&2%

W. & C. Lightning Shuffle Hoe, ₱ doz. $4.85

Hog Rings and Ringers—

See *Rings and Ringers.*

Hoisting Apparatus—

See *Machines, Hoisting.*

Hollow Ware—

See *Ware, Hollow.*

Holders— Bit—

Angular, ₱ doz. $24.00 ..... 45&10%

Door—

Empire 50%

File and Tool—

C. E. Jennings & Co.'s Model Tool Holders 33⅓%

Nicholson File Holders and File Handles 33⅓%

Hooks— Cast Iron—

Bird Cage, Reading 60%

Bird Cage, Sargent's List ..... 50&10@60%

Ceiling, Sargent's List ..... 40&10%

Clothes Line, Hoffman's ..... 40&10%

Clothes Line, Reading List ..... 65&10@65&10&10%

Clothes Line, Sargent's List 50&10&10%

Coat and Hat, Sargent's List ..... 45&10%

Clothes Line, Stowell's 70%

Coat and Hat, Stowell's 70%

Coat and Hat, Reading ..... 70@75%

Coat and Hat, Wrightsville ..... 65&10%

Harness, Reading List ..... 70&10@75%

Wire—

Belt 80%

Wire C. & H. Hooks ..60¢10@60¢10¢&5%

Atlas, Coat and Hat:

Single Cases 45%

10 Case Lots ..... 45&10%

Czar Harness ..... 50&10&5%

Wire Coat and Hat:

Acme 60%

B. B. 60%

V Brace, Chief and Czar 60%

Gem 60%

Bright Wire Goods—See *Wire.*

Wrought Iron—

Box, 6 in., per doz. $1.50; 8 in., $1.75; 10 in., $2.00.

Cotton ..... *doz.* $1.05@1.25

Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—

Bush, Light, doz. $5.50; Medium, $6.00; Heavy, $6.50

Grass ..... *Nos.*	*1*	*2*	*3*	*4*
Best	$1.50	1.75	2.00	
Common ...	$1.30	1.30	1.50	1.60

Potato and Manure 70%

Whiffletree ..... *lb.* 4¾*c*

Hooks and Eyes:

Brass ..... .60¢10¢10@70%

Malleable Iron ..... 70¢&5@70¢10%

Covert Saddlery Works' Self Locking Gate and Door Hook 60%

Crown Picture ..... 50&10%

Bench Hooks—See *Bench Stops.*

Corn Hooks—See *Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—

See *Shoes, Horse.*

Hose, Rubber—

Garden Hose, ¾-inch:

Competition ..... *ft.* 4¼@ 4¾*c*

3-ply Standard ..... *ft.* 5 @ 6 *c*

4-ply Standard ..... *ft.* 8 @ 9 *c*

3-ply extra ..... *ft.* 9 @10 *c*

4-ply extra ..... *ft.* 11 @12 *c*

Cotton Garden, ¾-in., coupled:

Low Grade ..... *ft.* 6 @7 *c*

Fair quality ..... *ft.* 8 @9 *c*

Irons— Sad—

From 4 to 10 ..... *lb* 2¾@3*c*

B. B. Sad Irons ..... *lb.* 3¼@3¾*c*

Chinese Laundry ..... *lb* 5@5¼*c*

Chinese Sad ..... *lb.* 3¼@3½*c*

Mrs. Potts', per set:

Nos.	*50*	*55*	*60*	*65*
	65@70c	*60@65c*	*75@80c*	*70@75c*

New England Pressing, lb.. 3½@3¾*c*

Soldering—

Soldering Copper ..... .18@19

2 lb., and up ..... .20@21*c*

Covert Mfg. Co. ..... 20&2%

Smith & Hemenway Co's Sets 70%

Pinking—

Pinking Irons ..... *doz. 50@60c*

Jack Screws—See *Screws.*

Jacks, Wagon—

Covert Mfg. Co., Steel ..... 45&2%

Covert's Saddlery Works':

Daisy ..... 60&10%

Victor ..... 60&10%

Lockport ..... 40@40&10%

Lane's Steel 33⅓%

Kettles—

Brass, Spun, Plain ..... .20@25%

Enameled and Cast Iron—See *Ware, Hollow.*

Knife Sharpeners—

See *Sharpeners, Knife.*

Knives—

Butcher, Shoe, &c.—

Foster Bros.' Butcher, &c. 30%

Hartzell Cutlery Co. ..... 30&5%

Smith & Hemenway Co ..... 40&10%

Hay and Straw—See *Hay Knives.*

Corn—

Ft. Madison Cut-Easy, ₱ doz. $3.25

Withington Acme, ₱ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List ..... .70&5@70¢&10%

Adjustable Handle 25%

Bradley's 35%

Cantelo's Folding ..... 50@50&5%

C. E. Jennings & Co. Nos. 45, 46. .40&10%

Jennings & Griffin ..... 60&&5%

Swan's ..... 70&10&2½%

Watrous 25%

L. & I. J. White ..... 20&5@25%

Hay and Straw—

Lightning ..... *per doz. $5 00@5.25*

Iwan's Sickle Edge ..... ₱ doz. $10.00

Iwan's Serrated ..... ₱ doz., $11.00

Maine ..... ₱ doz. $8.50

Mincing—

Buffalo ..... ₱ gro. $15.00

Miscellaneous—

Farriers' ..... *doz. $2 00@3.00*

Westenholm's ..... ₱ doz. $3.00@3.25

Knobs—

Base, 2¼-inch, Birch, or Maple, Rubber tip, gro ..... $1.10@1.20

Carriage, Jap, all sizes..gro. 30@35*c*

Door, Mineral ..... *doz.* 60@65*c*

Door, Por. Jap'd ..... *doz. 65@70c*

Door, Por. Nickel ....*doz. $2 00@2.10*

Hardsley's Wood Door, Shutter, &c. 15%

Picture, Sargent's ..... 60&10%

Lacing Leather—

See *Belting Leather—*

Ladders Step Etc.—

Goshen Mfg. Co.'s Step, etc. 50%

Lane's Store 25%

Myers 'Noiseless Store Ladders.....50%

Ladies' Melting—
L. & G. Mfg. Co.....25%
P. S. & W.....50%
Reading.....60%
Sargent's.....40@40&10%

Lanterns—Tubular—
Regular Tubular.....doz. $4.35@4.75
Lift Tubular.....doz. $4.75@5.25
Hinge Tubular.....doz. $4.75@5.25
Other Styles.....40@10@40&10@5%

Bull's Eye Police—
No. 1, 2½ inch.....$3.60
No. 2, 3 inch.....$4.00

Latches, Thumb—
Roggin's Latches.....doz. 30@33

Lawn Mowers—
See *Mowers, Lawn.*

Leaders, Cattle—
Small.....doz. 50c; large, 55c
Covert Mfg. Co.....45&2%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Solid Grip, Payson Mfg. Co.....80%
L. & E.....45%

Lines—

Wire Clothes, Nos...	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.65*
75 feet	*$1.80*	*1.70*	*1.30*

Ossawan Mills.
Crown Solid Braided Chalk.....33⅓%
Mason's, No. 0 to No. 5.....33⅓%
Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3.....40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50
₩ gr.....30%

Locks—Cabinet—
Cabinet Locks.....33⅓@33⅓&7½%

Door Locks, Latches, &c.—
[Net prices are very often made on these goods.]
Reading Hardware Co.....50%
R. & E. Mfg. Co.....70%
Sargent & Co.....40@40&10%

Elevator—
Stowell's.....40%

Padlocks—
Wrought Iron.....7@10&25@30&5%
R. & E. Mfg. Co. Wrt. Steel and Brass.50%

Sash, &c.—
Fitch's:
Bronze and Brass.....66⅔%
Iron.....70%
Ives' Patent:
Bronze and Brass.....62½%
Iron.....65%
Wrought Bronze and Brass.....55&5%
Wrought Steel.....60%
Payson's signal.....80%
Reading.....60&10&10@70%

Machines—Boring—
Common, Upright, Without Augers, $2.00
Common, Angular, Without Augers, $2.25

	Without Augers.	
R. & E. Mfg. Co.:	Upright.	Angular.
Improved No. 3.	$4.25	No. 1. $5.00
Improved No. 4.	3.75	No. 2. 3.38
Improved No. 5.	2.75	
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75
Swan's, No. 500	5.10	No. 200 6.45

Holsting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.20%
Moore's Portable Pneumatic Hoist.....25%

Ice Cutting—
Chandler's.....15%

Washing—
Wayne American.....₩ doz. $28.00
Western Star, No. 2.....₩ doz. 28.00
Western Star, No. 3.....₩ doz 30.00
St. Louis, No. 41.....₩ doz. 60.00

Mallets—
Hickory.....45&5@50%
Lignumvitæ.....45c5@50%
Tinners', Hickory and Applewood, doz.....50@55c

Mats—Door—
Elastic Steel (W. G. Co.).....10%

Mattocks—
See *Picks and Mattocks.*

Meat Cutters—
See *Cutters, Meat.*

Milk Cans— See *Cans, Milk*

Mills—Coffee—
Enterprise Mfg. Co.....25@30%
National, list Jan. 1, '94.....30%
Parker's Columbia and Victor.....50&10@60%
Parker's Box and Side.....50&10@60%
Swift, Lane Bros Co.....30%

Mincing Knives—
See *Knives, Mincing.*

Molasses Gates—
See *Gates, Molasses.*

Money Drawers—
See *Drawers, Money.*

Mowers, Lawn—
Net prices are generally quoted.
Cheap.....all sizes. $1.90@1.95
Good.....all sizes, $2.25@2.50

	10	*12*	*14*	*16-inch*
High Grade	*4.25*	*4.50*	*4.75*	*5.00*
Continental				40&10&5%
Great American				70&5%
Great American Ball Bearing				60&10&5%
Quaker City				70&5%
Pennsylvania				60&10&5%
Pennsylvania Golf				50%
Pennsylvania Horse				40%
Pennsylvania Pony				45%

Philadelphia:
Styles M., S., C., K., T.....70&5%
Style A, all Steel.....60&10%
Style E, Low Wheel.....40&10%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, low list...50&5%

Nails—
Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered.
List July 20, 1899.85&10@85&10&10%
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10	
A. C.	25¢	23¢	22¢	21¢	21¢	40&5%
Ausable	28¢	24¢	23¢	24¢	23¢	50&10%
C. B. K.	25¢	25¢	22¢	21¢	21¢	40%
Champ'in	28¢	26¢	25¢	24¢	23¢	40&10&5%
Clinto	19¢	17¢	16¢	15¢	14¢	30&10&5%
Maud S.	25¢	23¢	22¢	21¢	21¢	50%
Putnam	23¢	21¢	20¢	19¢	18¢	35&5%
Vulcan	23¢	21¢	20¢	19¢	18¢	25&10%

American, Nos. 5 to 10 ₩ ℔.....40@9¢
Neponset.....Nos. 5 to 10¢ ₩ ℔ 12¢
Jobbers' special brands...per lb. 8@9c

Picture—

	1½	*2*	*2½*	*3*	*3½ in.*
Brass Head	*.45*	*.60*	*.70*	*.95*	*1.00 gro.*
Por. Head	*..*	*1.10*	*1.10*	*1.10*	*.. gro.*

Nippers, See *Pliers and Nippers.*

Nut Crackers—
See *Crackers, Nut.*

Nuts—
Cold Punched: Off list.
Mfrs. or U. S. Standard.
Square, plain.....$4.70@4.80
Hexagon, plain.....$4.90@5.00
Square, C. T. & R.....$4.90@5.00
Hexagon, C. T. & R.....$5.40@5.50
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square Blank.....$5.40@5.10
Hexagon Blank.....$5.30@5.40
Square Tapped.....$4.80@4.90
Hexagon Tapped.....$5.10@5.20

Oakum—
Best or Government.....lb. 6¼c
Navy.....lb. 5 c
U. S. Navy.....lb. 5¼c
Plumbers' Spun Oakum.....3¼c
In carload lots ¼c lb. off f.o.b. New York.

Oil Axle—
Snow Flake: 33⅓&10%

1 pt. cans, per doz.	$3.00
1 qt. cans, per doz.	$4.80
1 gal. cans, per doz.	$15 00
5 gal. cans, per doz.	$66.00

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....40c10%
Tin or Steel.....60c10%
Zinc.....60c10%
Paragon:
Brass and Copper.....40c10%
Tin or Steel.....60c10%
Zinc.....60c10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list.....50&10%
Wilmot & Hobbs Mfg. Co:
Spring Bottom Cans.....70@70&10%
Railroad Oilers etc.....60@60&10%

Openers—Can—
French.....doz. 35c
Iron Handle.....doz. 25@27c
Sprague, Iron Hdle...per doz 35@40c
Sardine Scissors...doz. $1.75@$3.00
Tip Top.....per doz. $0.75
National, ₩ gro.....$1.75@$2.00
Stowell's.....per doz. 35@45c
Waldorf, ₩ gro.....$8.65

Egg—
Nickel Plate.....per doz., $2.25
Silver Plate.....per doz., $3.50

Packing—
Asbestos Packing, Wick and Rope, 15@15½c lb.

Rubber—
Sheet, C. I.....8@12c
Sheet, C. O. S.....9@13c
Sheet, C. B. S.....10@14c
Sheet, Pure Gum.....50@70c
Sheet, Red.....35@40c
Jenkins' Standard, ₩ ℔ 80¢.....25@25&5%

Miscellaneous—
American Packing.....7@10c lb.
Cotton Packing.....13@14c lb.
Italian Packing.....9@12½c lb.
Jute.....3½@4c lb.
Russia Packing.....7@11c lb.

Pails—Creamery—
S. & L. Co., with gauges.. No 1 $8.50; No. 2, $7.75 ₩ doz.

Galvanized—
Price per doz.

Quart	*10*	*12*	*14*
Water, Regular	*1.75*	*2.00*	*2.25*
Water, Heavy	*3.40*	*3.60*	*3.80*
Fire, Rd. Bottom.	*2 25*	*2.50*	*3.00*
Well	*2.50*		*3.00*

Pans—Dripping—
Standard List.....50c10@50c20%

Fry—
Common Lipped:

No.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.60*	*.75*	*.85*	*.95*	*1.15*

Roasting and Baking—
Regal, S. S. & Co., ₩ doz., Nos. 5 $4.50; 10 $5.00; 20 $5.50; 30, $6.00
Simplex, ₩ gro., No. 40 $30.00; 50, $34.50; 80 $39.00; 140, $33.00; 150, $37.50; 160, $43.00.

Paper—Building Paper—

Asbestos:	*lb.*
Building Felt	*3c*
Mill Board, sheet, 40 x 40 inches	*4c*
Mill Board, roll, thicker than 1-16 inch	*3c*
Mill Board, roll, 1-16 in. thick and less	*3c*
	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt., 20 lbs. to roll	*$1.32*
Medium wt., 30 lbs. to roll	*$0.17*
Heavy wt., 50 lbs. to roll	*$0.58*
Medium Grades Water Proof Sheathing	*$0.65@1.25*
Deafening Felt, 2, 6 and 4½ sq. ft. to lb., ton	*$40.00@42.00*
Red Rope Roofing, 250 sq. feet per roll	*$1.65*

NOTE.—These goods are often sold at delivered prices.

Tarred Paper.
1 ply (roll 200 sq.ft.), ton...$28.00@30.00
2 ply, roll 108 sq. ft.....40@45c
3 ply, roll 108 sq. ft.....60@65c
Slater's Felt (roll 500 sq. ft.)..50@60c
NOTE.—Above prices often include delivery.
R. R. & Stone Surfaced Roofing (roll 110 sq. ft.).....$2.75

Sand and Emery—
List Dec. 23, 1899.....60@60&10%

Parers—Apple—
Advance.....₩ doz. $4.50
Baldwin.....₩ doz. $5.00
Bonanza.....each $5.00
Dandy.....each $7.50
Eureka, 1898.....each $10.00
Family Bay State.....₩ doz. $4.00
Hudson's Little Star.....₩ doz. $4.00
Hudson's Rocking Table.....₩ doz $5.50
Improved Bay State ₩ doz. $27.00@30.00
New Lightning.....₩ doz. $5.50
Reading 72.....₩ doz. $4.00
Reading 78.....₩ doz. $7.00
Turn Table '98.....₩ doz. $5.50
White Mountain.....₩ doz. $4.00

Potato—
Saratoga.....₩ doz. $5.50
White Mountain.....₩ doz. $4.50

Paris Green— *per lb.*
Arsenic keys or casks.....11½@12½c
Kegs, 100 to 175 lbs.....12 @13 c
Kits, 14, 28, 56 lbs.....13 @14 c
Paper boxes, 2 to 5 lbs.....13 @14 c
Paper boxes, 1 lb.....13 @14 c
Paper boxes, ½ lb.....14 @15 c
Paper boxes, ¼ lb.....15 @16 c

Picks and Mattocks—
List Feb. 25, 1899.....70@70c10%

Pigeons—Clay
Markle's Black Birds, f.o.b. factory, per M.....$3.75
See also *Traps, Target.*

Pinking Irons—
See *Irons, Pinking.*

Pins—Escutcheon—
Brass.....60@60c10%
Iron, list Nov 11, '85.....50@60c10%

Pipe, Cast Iron Soil—
Standard, 2-6 in.....60c7½%
Extra Heavy, 2-6 in.....70%
Fittings.....75c5%

Pipe, Merchant, Boiler Tubes, &c.—

	Black.	*Galvanized*
Merchant Pipe.		
⅛ to ½ inch	*56%*	*43%*
¾ to 12 inch	*64%*	*41%*
Boiler Tubes		*Up to*
Steel.		*22 feet*
1 to 1½ inch, inclusive		*47½%*
2¼ to 5 inch, inclusive		*60%*
1¼ to 2½ and 6 to 13 inches		*60%*
Iron.		
1 to 1½ inch and 2½ in.		*45½%*
1¾ to 2¼ inch		*40%*
2½ to 13 inch		*53%*
Casing, Cut Lengths.		*S. & S.*
2 to 3 inch		*51½%*
3½ to 4 inch		*51½%*
4½ to 12½ inch		*59½%*

Pipe Sewer—
Standard Pipe and Fittings, 2 to 24 in.
New England.....70%
New York and New Jersey.....75%
Maryland, Delaware, East Penn.7.5%
West Penn. and West Va.....75%
Virginia.....75%
Ohio, Michigan and Ky.....8 %
Carload lots are generally delivered.

Planes and Plane Irons—Wood Planes—
Molding.....40c2½@40c10%
Bench, First quality 45c10@45c10c5%
Bench, Second qual.50c10@50c10c5%
Bailey's (Stanley R. & L. Co) 25&10@25&10&10%
Gage Self Setting.....35%

Iron Planes—
Bailey's (Stanley R. & L. Co).....45&10@25&10&10%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10@25&10&10%
Sargent's.....50&10&10%

Plane Irons—
Wood Bench Plane Irons.....30c5@30c10c5%
Buck Bros.....30%
Stanley R. & L. Co...20&10@20&10&10%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand.
Kohler's Eclipse.....₩ doz. $9.00

Plates—
Felloe.....lb 3¾@4c
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00.....50%

Pliers and Nippers—
Button Pliers.....75@75c10%
Gas Burner, per doz., 5 in., $1.15@ $1.20; 6 in., $1.35@$1.45

Gas Pipe..	*7*	*8*	*10*	*12-in.*
	$1.75	*$2.00*	*$2.75*	*$3.75*

Acme Nippers.....50@50&5%
Bernard's:
Parallel Pliers, &c.....35%
Paragon Pliers.....50&5%
Lodi Pliers.....50&5%
Elm City Fence Pliers.....35%
Cronk Hanger Co.:
American Button.....75&10%
Cronk's.....60%
Improved Button.....70&10%
Stub's Pattern.....50%
Combination and others.....25%
Heller's Farriers' Nippers, Pincers, and Tools 50@50&5%
P., S. & W. Tinners' Cutting Nippers, 30@30&10%
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.....40%

Plumbs and Levels—
Plumbs and Levels.....75@75c10%
Davis Iron, Machinist Nos. 1 to 14....30%
Davis Iron, Adjustable Nos. 6 to 49....35%
Disston's.....70%
Pocket Levels.....75&10&10@75&10%
Stanley R. & L. Co .....40@40&10&10%
Stanley's Duplex.....30@20&10&10%
Woods' Extension.....33⅓%

Poachers, Egg—
Buffalo Steam Egg Poachers, ₩ doz., No. 1, $7.20; No. 2, $11.00 No. 3, $11.00; No. 4, $14.50.....50%

Points, Glaziers'—
Bulk and 1 lb. papers.. lb. 8 c@..
½-lb. papers.....lb. 8½c@..
¼-lb. papers.....lb. 9 c@..

Pokes, Animal—
Ft. Madison Hawkeye.....₩ doz. $3.25
Ft. Madison, Western.....₩ doz. $3.75

Police Goods—
Manufacturers' Lists.....25@25&5%
Tower's.....25%

Polish—Metal—
Prestoline Liquid, No. 1 (½ pt.), ₩ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....40&10%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₩ doz. 50¢; ₩ gr. $4.50; ½ ℔ boxes, ₩ doz. $1.25; 1 ℔ boxes, ₩ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₩ doz. $1.25; ₩ gr. $12.00.
Barkeepers' Friend Metal Polish, ₩ doz. $1.75; ₩ gr. $18.00.
Wynn's White Silk, ½ pt. cans, ₩ doz.....$2.00

Stove—
Black Eagle Benzine Paste, 5 ℔ cans, ₩ ℔ 10¢
Black Eagle, Liquid, ½ pt. cans, ₩ doz. 75¢
Black Jack Paste, ¾ ℔ cans, ₩ gro. $9.00
Ladd's Black Beauty, gr. $10.00.....50%
Joseph Dixon's, ₩ gr. $5.75.....10%
Dixon's Plumbago.....₩ ℔ 8¢
Fireside.....₩ gr. $2.50
Gem, ₩ gr. $4.50.....10%
Japanese.....₩ gr. $3.50
Jet Black.....₩ gr. $3.50
Peerless Iron Enamel, ½ pt. cans, ₩ doz. $1.50
Wynn's:
Black Silk, 5 ℔ pail.....each 70¢
Black Silk, ½ ℔ box.....₩ doz. $1.00
Black Silk, 5 oz. box.....₩ doz. $0.75
Black Silk, ½ pt. liq.....₩ doz. $1.00

Poppers, Corn—
Round or Square:
1 qt.....gro. $7.00@$7.50
1½ qt.....gro. 9 50@ 10.00
2 qt.....gro. 10.50@ 11.00

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Potato Parers—
See *Parers, Potato.*

Pots—Glue—
Enameled.....45%
Tinned.....40%

Powder—
In Canisters:
Duck, 1 lb. each.....45c
Fine Sporting, 1 lb. each.....75c
Rifle, ½-lb. each.....15c
Rifle, 1-lb. each.....25c
In Kegs:
Duck, 6½-lb. kegs.....$2.25
Duck, 12½-lb. kegs.....$4.25
Duck, 25-lb kegs.....$8.00
Rifle, 6¼-lb kegs.....$1.25
Rifle, 12½-lb. kegs.....$2 25
Rifle, 25-lb. kegs.....$4.00
King's Semi-Smokeless:
Keg (25 ℔ bulk).....$6 50
Half Keg (12½ ℔ bulk).....$3.50
Quarter Keg (6¼ ℔ bulk).....$1.90
Case 24 (1 ℔ cans bulk).....$8.50
Half case (1 ℔ cans bulk).....$4 50

King's Smokeless:	Shot Gun	Rifle
Keg (25 ℔ bulk)	$12 00	$15.00
Half Keg (12½ ℔ bulk)	6.25	7.75
Quarter Keg (6¼ ℔ bulk)	3.25	4.00
Case 24 (1 ℔ cans bulk)	14.00	17 00
Half case 12 (1 ℔ cans blk)	7.25	8 75

Presses—Fruit and Jelly—
Enterprise Mfg. Co.....20@25%

Seal Presses—
Morrill's No. 1, per doz. $20.00.....50%
Morrill's No. 2, per doz. $22 50.....50%

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—
Cyclops.....40@40&10%
Miller's Falls, No. 3, per doz. $12.00.....15&10%
Pearson No. 1, Cyclone Spike Puller, each $50.00.....50%
Pelican, ₩ doz. $9.00.....40&10%
Samson.....₩ doz $18.00
Scranton, Case Lots:
No. 1 (large), ₩ doz. $6.50; No. 2 (large), $5.75; No. 3 (small), $5.00; No. 2-B (large), $5.50; No. 3-B (small), $5.00; No. 2-D (large), $4.50; No. 3-D (small) $4.00.
Smith & Hemenway Co.:
Diamond B, No. 2, case lots. ₩ doz $6.00
Diamond B, No. 3, case lots. ₩ doz $5.50
Giant, No. 1, ₩ doz. $18; No. 2, $16.50; No. 3, $15.....40%

Pulleys—Single Wheel—

Inch.....	*2*	*2½*	*3*
Awning ..doz.	*$0.45*	*.70*	*.95*
Inch.....	*2*	*2½*	*3*
Hay Fork, Swivel or Solid Eye.....doz.		*$1.35@1.50*	
Hot House, doz	*$0.65*	*.90*	*1.20*
Inch.....	*1¼*	*1½*	*1¾*
Screw.....doz.	*$0.15*	*.20*	*.25*
Inch.....	*1¾*	*2*	*2¼*
Side.....doz.	*$0.30*	*.40*	*.55*
Inch.....	*1½*	*1¾*	*2*
Tackle.....doz.	*$0.30*	*.45*	*.65*

Stowell's:
Ceiling or End, Anti-Friction.....60%
Dumb Waiter, Anti-Friction...60&10%
Hay Fork, Anti-Fricton, 5-in. Wheel, ₩ doz. $12.00.....50%
Electric Light.....60%
Side, Anti-Friction.....60&10%

Sash Pulleys—
Common Frame; Square or Round End per doz., 1¾ in., 15c; 2 in., 16c
Auger Mortise, no Face Plate, per doz. 1¾ in., 12c.; 2 in., 15c.
Auger Mortise, with Face Plate, per doz., 1¾ in., 13c.; 2 in., 15½c.

Acme.....1¼in., 16¢; 2 in., 19¢
Common Sense, 1¾ in.... ₱ doz., 18¢; 2 in., 20¢.
Fox-All-Steel, Nos. 3 and 7, 2½ in..... ₱ doz. 25¢
No. 9, 1¾ in..... ₱ doz. 20¢
Extra for Plated Finish...₱ doz. 30¢
Extra for Anti-Friction Br nze Bushing..... ₱ doz 10¢
Grand Rapids All Steel Noiseless ..40%
Ideal No. 13.....1¾ in.. ₱ doz.. 16¢
Niagara.....1¾ in 16¢; 2 n 19¢
No. 26, Troy....1¾ in., 14½¢; 2 in.. 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern.....60@5&10%
Pitcher Spout.....75@75&10%
Wood.....50@50&10%
Pump Leathers. Lower and Plunger Valves—Per gro :

Inch..	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch..	3	3¼	3½	3¾	4
	$3.30	3.60	3.85	4.10	4.40

Barnes Dbl. Acting (low list).. ..50%
Flint & Walling's Fast Mail (low list).50%
Flint & Walling's Pitcher Spout.....75%
Loud's Suction Pumps, U. a. Co.....20%
Myer's Pumps, low list 50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50&10%
Contractors' Rubber Diaphragm Non-chokable, P. & L. Block Co.....30%

Punches—

Revolving (4 tubes)...doz. $3.75@4.25
Saddlers' or Drive, good..doz. 65@70c
Spring, single tube, good quality.... $1.65@1.75
Bemis & Call Co.'s Cast Steel Drive....50%
Bemis & Call Co.'s Check 55%
Bemis & Call Co.'s Spring 50%
Morrill's No. 1 (A.B.C.), ₱ doz., $15.00 ..50%
No. 2, ₱ doz. $22.50.....50%
No. 2, Metal, ₱ doz., $45.00.....50%
Bench Punch, each, $80.00 .....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches .....55&10%
Steel Screw, B & K. Mfg. Co 40%
Tinners' Hollow, P., S. & W. Co.....35&3&5%
Tinners' Solid, P., S. & W.Co., ₱ doz., $1.44.....60%

Rail— Barn Door, &c.—

Cast Iron, Barn Door: Flange Screw Holes for Rd. Groove Wheels :

½	⅝	¾	In.
$1.70	$2.10	$5.00	100 feet.

Angular for Sq. Groove Wheels :

Small.	*Med.*	*Large.*	
$1.60	1.95	2.70	*100 feet.*

*Sliding Door, Brnzed W'r't Iron, ft.*6½c
Sliding Door, Iron Painted....2½@3c
Sliding Door, Wrought Brass, 1x8 in. .....*lb.* 36c..30%
Cronk's Double Braced Steel Rail, ₱ foot.....3¼¢
Cronk's O. N. T. Rail.....3¼¢
Lanes' O. N. T., ₱ 100 ft., 1 inch... $2.75
Lanes' Standard, ₱ 100 ft.....3.75
Lawrence Bros' .....₱ ft. 4¼¢
McKinney's None Better.....₱ ft. 3¾¢
McKinney's Standard.....₱ ft. 4 c
Stowell's Cast Rail .....1½¢
Stowell's Steel Rail, Plain.....25%
Stowell's Wrought Bracket, Plain....3¼¢

Rakes—

Net Prices, Malleable Rakes:

	10	*12*	*14*	*16-tooth*
Shank.....	$1.50	1.60	1.75	1.85
Socket...	1.65	1.80	1.95	2.10

Sept. 1, 1900, List :
Cast Steel.....70@5&2%
Malleable.....70@10@75@5%
Lawn Rakes, Metal Head, per doz.,
20 teeth.....$3.25@3.50
24 teeth.....$3.60@3.75
Fort Madison Red Head Lawn.....$3.25
Fort Madison Blue Head Lawn.....$3.00
Jackson Lawn, 29 and 30 teeth..... ₱ doz. $4.00
Kohler's :
Lawn Queen, 20-tooth, ₱ doz.....$3.60
Lawn Queen, 24-tooth, ₱ doz.....$3.75
Paragon, 20-tooth, ₱ doz.....$2.85
Paragon, 24-to th, ₱ doz.....$3.00
Steel Garden, 14-t ooth, ₱ doz.....$3.00
Malleable Garden, 14-tooth ₱ doz. $2.25

Rasps, Horse—

Diston's.....75%
Heller Bros.....70&5%
McCaffrey File Co Horse Rasps.60&10&5%
New Nicholson Horse Rasp.....70&10%
See also *Files.*

Razors—

Boracic.....70%
Fox Razors, No. 42... ₱ doz. $20.00
Fox Razors, No 44. ₱ d z $24.00 } dis. 40
Fox Razors, No. 82, Platina, ₱ doz $24.00 }
Silberstein:
Carbo Magnetic.....$18.00
Griffon, No. 65.....$15.00
Griffon, No. 90.....$12.00
All other Razors.....40%
Safety Razors.....40%

Razor Strops—

See *Strops, Razor.*

Reels— Fishing—

Hendryx Aluminum, German Silver, Gold Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 43 and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%
Shakespeare, Style C.....25%

Registers—

List Sept. 2, 1901.

Black Jap.....
White Jap.....
Bronzed.....
Nickel Plated.....
Electro Plated.....
} 75@75¢ 10¢10%

There is a good deal of irregularity in prices of Registers.

Revolvers—

Single Action.....85@90c
Double Action, except 44 calibers.$2.50
Double Action, 44 calibers.....$4.65
Automatic.....$4.10
Hammerless.....$8.90

Riddles, Grain or Sand—

16 in. per doz.....$2.00@$2.25
17 in. per doz.....$2.25@$2.50
18 in. per doz.....$2.50@$2.75

Rings and Ringers—

Bull Rings—

2	*2½*	*3 Inch.*
Steel.. .....$0 80	0 90	0.95 *doz.*
Copper.. ... 1.10	1.20	1.50 *doz*

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $4.00@4.50
Hill's Ringers, Gray Iron, doz. 55@60c
Hill's Ringers, Mal. Iron, doz. 75@80c
Blair's Rings.....per gro. $5.00@5.25
Blair's Ringers...per doz. $0.60@ .65
Brown's Rings....per gro. $7.00@7.25
Brown's Ringers...per doz. $1.00@1.10
Rapid Rings.....₱ gro. $6.00
Rapid Ringers.....₱ doz. $3.50

Rivets and Burrs—

Copper.....50¢10@50&10¢5%
Iron or Steel :
Tinners'.....70@70¢10%
Miscellaneous.....70@70¢10%

Rivet Sets—See *Sets*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....50&10&10%
Cronk's Stay.....60%
Cronk's Brinkerhoff.....60%
Lane's, Stay.....33⅓%
Stowell's Barn Door Stay...₱ dos. $1.25

Rope—

Manilla, 7-16 in. and larger, tarred or untarred...lb. 13½@ ..
Manila.....⅝-inch ....lb. 14 @ ..
Manila ¼ & 5-16 in....lb. 14½@ ..
Manila Hay, Hide and Bale Ropes Medium and Coarse.....*lb.* ..@13½c
Sisal, 7-16 in. and larger.... lb. 10 c
Sisal.....⅝-inch.... *lb.* 10½c
Sisal.....¼ *and 5-16 inch.... lb.* 11 c
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse.....*lb.* 10½c
Sisal, Tarred, Medium Lath Yarn.....*lb.* 9¼c
Cotton Rope :
Best.....¼-*in. and larger lb.* 13½c
Medium.....¼-*in. and larger lb.* 11 c
Com.....¼-*in. and larger lb.* 9 c
Jute Rope :
Thread No. 1, ¼ in. and up lb. 6½c
Thread No. 2, ¼-in. and up lb. 6 c
Yarn, ¼ in and up..... *lb.* 4½c

Wire Rope—

Galvanized.....25@7½%
Plain.....30@7½%

Ropes, Hammock—

Covert Mfg. Co.....45&2%
Covert Saddlery Works.....60&5%

Rules—

Boxwood.....60@5&10%
Ivory.....35@10@35@10@10%
Chapin-Stephens Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Stanley R. & L. Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10&10%
Upson Nut Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&10&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—

See *Paper and Cloth.*

Sash Cords—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—

See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers Sausage.*

Saw Frames—See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins :
Circular.....50@50&10%
Band.....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50&10%
One-Man Saw.....40%
Wood Saws.....40%
Hand, Compass, &c.....40%
Diamond Saw and Stamping Works:
Sterling Kitchen Saws.....25%
Diston's :
Circular Solid and Inserted Tooth.50%
Band 2 to 14 in. wide.....60%
Band ¼ to 1¾.....70%
Crosscuts.....45@45&10%
Narrow Crosscuts.....50@50&10%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35@35&7½%
Woodsaw Blades.....40@40&7½%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 79, 77, 8.....25@25&7½%
Hand Saws, Nos. 7 ,07, 107½, 3, 1, 0, 00, Combination.....30@30&7½%
Compass, Keyhole, &c.....25@25&7½%
Butcher Saws and Blades..35@35&7½%
C. E. Jennings & Co.'s.:
Back Saws.....25%
Butcher Saws.....35%
Compass and Key Hole Saws.....25%
Framed Wood Saws.....40%
Hand Saws.....25@30%
Wood Saw Blades.....45%
Peace :
Circular and Mill 50%
Cross Cuts, list Jan. 1, '99.....50%
Hand, Panel and Rip.....30%
Richardson :
Circular and Mill 50%
Hand, &c.....30%
X Cuts, list Jan. 1, '99 .....50%
Simonds' :
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws..50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Compass, Keyhole, &c .....25@25&7½%
Wood Saws .....35@35&7½%

Hack Saws—

Diston:
Concave Blades.....25%
Keystone.....30%
Hack Saw Frames.....30%
C. E. Jennings & Co's:
Hack Saw Frames, Nos. 175, 180, 330.....40%
Hack Saws, Nos. 175, 180, 330, complete.....40%
Griffin's Hack Saw Frames 45%
Griffin's Hack Saw Blades.....45%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades.....25%
Sterling Hack Saw Frames.....20%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18 ; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scale Beams—

See *Beams, Scale.*

Scales—

Family, Turnbull's.....30@30&10%
Counter :
Hatch. Platform, ½ oz to 10 lbs. doz $5.50
Two Platforms, ½ oz to 8 lbs. doz. $16
Union Platform. Plain..$1.70@1.90
Union Platform, Striped $1.85@2.15
Chatillon's :
Eureka.....25%
Favorite.....40%
Grocers' Trip Scales.....50%
Peloubet Scales—Household, Counter Confectionery, Postal, Ice, &c.....50%
"The Standard" Portables.....45%
"The Standard" R. R. and Wagon....50%

Scrapers—

Box. 1 Handle.....*doz $2.25@2.50*
Box. 2 Handle.....*doz. $3.75@4.00*
Ship, No 1, doz. $3.50 ; No 2, $2.25@3.40
Adjustable Box Scraper (S. R. & L. Co.) $8.00.....30@30&10%

Screens, Window, and Frames—

Bonanza Window Screens.....60@60&5%
Flyer Pattern Windo w Screen..60@60&5%
Maine Window Screen Frames.40&10&5%
Perfection Window Screens.....60@60&5%
Phillips' Window Screen Frames, 60&10&5%
Porter's Hummer Window Screens, 60@60&5%
Porter's Klondike Window Screens .... 60&2½@60&7½%
Wabash Spring Adj. Screen.....50%
See also *Doors.*

Screw Drivers—

See *Drivers, Screw.*

Screws—Bench and Hand—

Bench, Iron..doz, 1 in., $3.00@3.25 ; 1¼, $3.50@3.75 : 1¼, $4.00@4.50
Bench, Wood, Beech..doz. $3.50@3.75
Hand, Wood.....30@5@50%
Hand, R. Bliss Mfg. Co.....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99.....75@50@..%
Coach and Lag, Gimlet Point, list Oct. 1, '99.....75@..%
Hand Rail, list Jan. 1, '81.60@10@...%

Jack Screws—

Standard List.....75@75&10%
Milliers Falls.....50&10&10%
Milliers Falls, Roller .....50&10%
P., S. & W.....50&50&5%
Sargent.....70&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.50@50&10%
Flat or Round Head, Brass.50@50&10%

Set and Cap—

Set (Iron or Steel).....70%
Sq. Hd. Cap.....65%
Hex. Hd, Cap.....65%
Rd. or Fillister Hd. Cap.....60%

Wood—

List Jan. 1, 1900.
Manufacturers' printed discounts :
Flat Head, iron.....87½@90%
Round Head, Iron.....85@87½%
Flat Head, Brass.....85@87½%
Round Head, Brass.....82½@85%
Flat Head, Bronze.....75@80%
Round Head, Bronze.....72½@77½%
Drive Screws.....87½@90%
NOTE.—*Extra* 10&10&5% *often given.*

Scroll Saws—See *Saws, Scroll*

Scythes— *Per doz.*

Clipper Pattern, Grass.....$4.25
Full Polished Clipper.....$4.75
Grain.....$7.00
Clipper, Grain.....$7.50
Wood and Bush.....$4.50

Scythe Snaths—

See *Snaths, Scythe.*

Seeders— Raisin—

Enterprise.....25@30%

Sets— Awl and Tool—

Brad Awl and Tool Sets :
Wood Hdle...10 Awls doz. $2.00@2.25
Wood Hdle., 14 Awls, 6 Tools.... doz. $2.50@2.60
Aiken's Sets, Awl and Tools : No. 20, ₱ doz. $10.00.....50&10&10%
Fray's Adj. Tool Holds...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
Milliers Falls Adj. Tool Holds, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Excelsior : No. 1, $7.50 ; No. 2 $4.00; No. 3, $5.50.....60@30&10&10%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.... ₱ dos.....$9.00

Nail—

Square.....*per gro. $2.50*
Round, Brk. and Poi., assorted..... gro. $1.80@2.50
Octagon.....*gro. $4.25@4.75*
Knurled, Good.....*gro. $5.00@6.50*
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $12..25%
Mayhew's.....per gro. $9.00
Snell's Corrugated, Cup Pt. per gro. $7.50
Snell's Knurled, Cup Pt....per gro $7.50

Rivet—

Regular list.....70@70¢10¢5%

Saw—

Aiken's:
Genuine.....₱ doz. $5.50@6.00
Imitation .....₱ doz. $3.00@3.10
Atkin's :
Criterion.....10%
Adjustable.....40%
Bemis & Call Co's.:
Cross Cut.....30%
Hammer, new Pat.....45%
Plate.....20%
Spring Hammer.....40%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.83.....50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.83.....50%
No. 1 Old Style, $10.00.....50%
Taintor Positive, ₱ doz. $18.....60%

Sharpeners Knife—

Chicago Wheel & Mfg. Co.....65%
Smith & Hemenway Co .....20&5%
Tanite Mills ₱ gross, $14.40....25@33⅓%

Sharpeners Skate—

Eureka Skate Sharpener.....₱ doz. $2.00

Shaves Spoke—

Iron.....*doz. $1.00@1.25*
Wood.....*doz. $1.75@2.00*
Bailey's (Stanley R. & L. Co.) ..... 50@50&10&10%
Goodell's, ₱ doz. $9.00.....15&10%

Shears—

Cast Iron....	*7*	*8*	*9 in.*
Best ...	$16.00	18.00	20.00 *gro.*
Good.....	$13.00	15.00	17.00 *gro.*
Cheap....	$5.00	6.00	7.00 *gro.*

Straight Trimmers, &c.:
Best quality, Jap.....70@70¢10%
" *Nickel*.....60@60¢10%
Fair qual. Jap.....80@80¢5%
" *Nickel*.....75@75¢10%
Tailors' Shears.....40@40¢10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailors' Shears.....40%
Wilkinson's Hedge.....50%
Wilkinson's Sheep.....1900 list, 50%

Tinners' Snips—

Steel Blades.....20¢10%
Steel Laid Blades.....50¢10%
Forged Handles, Steel Blades, Berlin .....40@40&10%
Jennings & Griffin Mfg. Co's. 7 to 10 inch.....50%
Niagara Snips.....40%
P. S. & W. Co.....20%

Pruning Shears and Tools—

Cronk's Grape Shears.....33⅓%
Cronk's Pruning Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00 .....25@25&10%
John T. Henry Mfg. Company :
Pruning Shears, all grades..40@40&5%
Orange Shears.....50&10@50&20%
Grape.....40&10@50%
Tree Pruners.....75%
Nagley's Pruning Shears.....10&5%
P., S. & W. Co.....33⅓%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Patent Roller Hatfield's, Sargent's list, ...15&10&10%
Reading.....70&10@75%
R. & E. list.....33⅓%
Wrightsville, Hatfield Pattern.....80%

Sliding Shutter—

Reading list.....70&10@75%
R. & E. list.....33⅓%
Sargent's list.....50&10⅓&10%

Shells— Shells, Empty—

Brass Shells, Empty :
First quality, all gauges.....60&5%
Climax, Club, Rival, 10 and 12 gauge.. 65&5%
Paper Shells, Empty :
Acme, Ideal, Leader, New Rapid, Magic 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, New Victor, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge.....20%
Climax Union, League, New Rival, 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge ($7.50 list)..20%
Expert Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓&5%

Shells, Loaded—

Loaded with Black Powder.....40¢5%
Loaded with Smokeless Powder, medium grade.....40¢10%
Loaded with Smokeless Powder, high grade.....40¢10¢10¢5%

Shoes, Horse, Mule, &c.—

F. o. b., Pittsburg.

Iron.....*per keg $3.90*
Steel.....*per keg 3.35*
Burden's, all sizes, ₱ keg.....$3.60

Shot—

Drop, up to B, 25-lb. bag.....$1.35
Drop, B and larger, per 25-lb. bag..... $1.60
Buck, 25-lb. bag.....$1.60
Chilled, 25 lb. bag.....$1.60
Dust Shot, 25-lb. bag.....$2.10
Markle's Chilled.....$1.60
Raymond Chilled.....$1.60

Shovels and Spades—

Association list, March, 1902.....40%

Sieves and Sifters—

Hunter's Imitation..gro. $11.00@11.50
Buffalo Metallic Blued, S. S. & Co., ₱ gr.:

14&16	16&18	18&20
$12.90	$13.80	$15.00

F. J. Meyers' Mfg. Co.:
Eclipse ₱ gr. $11.00
Electric Light ₱ gr. $11.00
Hunter's Genuine ₱ gr. $12.50
No Name, Hunter's ₱ gr. $11.00
Standard ₱ gr. $11.00
Shaker (Barler's Pat.) Flour Sifters. ₱ doz., $2.00 ..90%

Sieves, Tin Rim—
Per dozen

Mesh	14	16	18	20
Black, full size	$0.95	.98	1.00	1.10
Plated, full size	$1.05	1.08	1.10	1.20
Black, scant	$0.78	.80	.83	

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz ..$0.65@0.75
Mesh 20, Nested, doz ..75@ .85
Mesh 24, Nested, doz ..90@1.00

Sinks—Cast Iron—
Standard list ..65&10@70..%
NOTE.—*There is not entire uniformity lists used by jobbers.*

Wrought Steel—
New Era, Galv'd and Enameled ..70&5%
New Era, Painted ..60&10%
L. & G. Mfg. Co., Galvanized ..50%
L. & G. Mfg Co., Enameled ..50%

Skeins, Wagon—
Cast Iron ..70&10@75%
Malleable Iron ..40&10@50%
Steel ..40@40&10%

Slates—
Factory Shipments.
"D" Slates ..50&10&10&10%
Unexcelled, etc., Noiseless Slates, 60 & 8 tens %
Victoria, etc., Noiseless Slates, 60& 7 tens &5%
Wire Bound ..50&10&5%
Web Hinge ..50%

Slaw Cutters—See *Cutters.*

Slicers, Vegetable—
Sterling $2.00 ..33⅓

Snaps, Harness—
German ..40@40&10%
Covert Mfg. Co.:
Decoy ..35&2%
High Grade ..45&2%
Jockey ..40&2%
Trojan ..45&2%
Yankee ..35&2%
Yankee, Roller ..30&2%
Covert's Saddlery Works:
Crown ..60%
German ..60%
Model ..60%
Triumph ..60%
W. & E. T. Fitch Co.:
Bristol ..40&10%
Empire ..50&5%
German ..40%
National ..50&5%
Perfect ..45%
Clipper ..50&5%
Champion ..40%
Security ..40%
Victor ..60&5%
Oneida Community:
Solid Steel ..65@65&10%
Solid Swivels ..65&10@65&10&10%
Sargent's Patent Guarded ..66⅔&10%

Snaths—
Scythe ..50@50&10%

Snips, Tinners'—See *Shears.*

Soldering Irons—
See *Irons, Soldering.*

Spoke Trimmers—
See *Trimmers, Spoke.*

Spoons and Forks—
Silver Plated—
Good Quality ..50&10@60&10&5%
Cheap ..60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton ..40&10%
Rogers & Bro., William Rogers Eagle Brand ..50&10%
Anchor, Rogers Brand ..60%
Wm. Rogers & Son ..60&10%
Simeon L. & Geo. H. Rogers Co.:
Silver Plated Flat Ware ..60%
No. 57 Silver Plated Ware ..60&10%

Miscellaneous—
German Silver ..60&10@60&10&10%
Cattaraugus Cutlery Co.:
Yukon Silver ..50%
Simeon L. & Geo. H. Rogers Co.:
German or Nickel Silver, Special list ..1 &10%

Tinned Iron—
Teas ..per gro. 45@55c
Tables ..per gro. 90c@$1.00

Springs— Door—
Gem (Coil) ..20%
Star (Coil) ..30%
Torrey's Rod, 30 in. ₱ doz. $1.10@1.25
Victor (Coil) ..50&10&10%

Carriage, Wagon, &c.
1¼ in. and Wider:
Black or ⅛ Bright, lb ..5 c
Bright, lb ..5½c
Painted Seat Springs:
1¼ x 2 x 26 and smaller, per pr 48@53c
1¼ x 2 x 28 per pr ..56@61c
1¼ x 3 x 28 and narrower, per pr ..75@80c
Cliff's Springs:
Bolster ..40%
Seat ..per pair 50c
Pole, per pair, ⅝ in. $1.10; ¾ in. $1.25

Sprinklers, Lawn—
Enterprise ..25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24 ..30%

Squares—
Nickel plated .... } *List Jan. 5, 1901*
Steel and Iron ... } ..75@75&10%
Rosewood Hdl Try Square and T-Bevels ..60&10&10@70%
Iron Hdl. Try Squares and T-Bevels. ..50&10@50&10&10%
Disston's Try Sq. and T-Bevels ..60&10%
Winterbottom's Try and Miter ..40&10@40&10&10%

Squeezers— Lemon—
Wood, Common, gro. ..No. 2, $5.25 @$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined, Chean ..doz. $2.00@2.75
Good Grade ..doz. $3.00@3.50
Tinned Iron ..doz. $0.75@1.25
Iron, Porcelain Lined doz. $2.90@3.25
Jennings' Star ..₱ doz. $1.85@1.90

Staples—
Barbed Blind ..lb. 6@6½c
Electricians', Association list ..80&10&10%
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting, Staples ..per lb. 2¼@2½c
Grand Crossing Tack Co.'s list ..80&10%

Steels, Butchers'—
Dick's ..30%
Foster Bros' ..30%
Hartzell Cutlery Co ..30&5%
C. & A. Hoffmann's ..40%

Steelyards ..25@25&10%

Stocks and Dies—
Blacksmiths' ..40@40&10%
Gardner Die Stocks No. 1 ..50%
Gardner Die Stocks, larger sizes ..40%
Green River ..25%
Lightning Screw Plate ..25%
Little Giant ..25%
Reece's New Screw Plates ..25@30%
Curtis Reversible Ratchet Die Stock ..25%

Stone—
Scythe Stones—
Chicago Wheel & Mfg. Co:
Gem Corundum, 10 inch, $8.00 per gro., 12 inch, $10.80
Pike Mfg. Co. 1901 list:
Black Diamond S. S. ..₱ gro. $12.00
Lamoille S. S. ..₱ gro. $11.00
White Mountain S. S. ..₱ gro. $9.00
Green Mountain S. S. ..₱ gro. $6.00
Extra Indian Pond S. S. ₱ gro. $7.50
No. 1 Indian Pond S. S. ..₱ gro. $7.00
No. 2 Indian Pond S. S. ..₱ gro. $4.50
Leader Bed End S. S. ..₱ gro. $4.50
Balance of 1901 list 33⅓%

Oil Stones, &c.
Chicago Wheel & Mfg. Co. 1901 list:
Gem Corundum Oil, Double Grit ..50%
Gem Corundum Axe, Single or Double Grit ..35%
Gem Corundum Slips ..55%
Gem Corundum Razor Hones ..50%
Pike Mfg. Co. 1901 list: ₱ lb
Arkansas Stone, No. 1, 3 to 5½ in. $2.80
Arkansas Stone, No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1 ..$4.00
Lily White Washita 4 to 8 i ..60¢
Rosy Red Washita, 4 to 8 in ..60¢
Washita Stone, Extra, 4 to 8 in. 50¢
Washita Stone, No. 1, 4 to 8 in. 40¢
Washita Stone, No. 2, 4 to 8 in. 30¢
Lily White Slips ..90¢
Rosy Red Slips ..90¢
Washita Slips, Extra ..80¢
Washita Slips, No. 1 ..70¢
India Oil Stones (entire list) ..25%
Hindostan No. 1, Regular ..₱ lb 8¢
Hindostan No. 1 Small ..₱ lb 10¢
Axe Stones (all kinds) ..33⅓%
Turkey Oil Stones, ex. 5 to 8 in. ₱ lb 80¢
Queer Creek Stones, 4 to 8 in. ..30¢
Queer Creek Slips ..90¢
Sand Stone ..5¢ ..40%
Belgian, German and Swaty Razor Hones ..40%
Natural Grit Carving Knife Hones, ₱ doz ..$3.00
Quick Edge Pocket Knife Hones, ₱ doz ..$3.00
Mounted Kitchen Sand Stone, ₱ doz ..$1.50
Tanite Mills:
Emery Oil, ₱ doz. $5.00 ..50@60%

Stoners—
Cherry—
Enterprise ..25@30%

Stops, Bench—
Millers Falls ..15&10%
Morrill's ..₱ doz., No. 1, $10.00 ..50%
Morrill's, No. 2, $12.50 ..50%

Stops, Window—
Ives' Patent ..25&5%

Stove Boards—
See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Strainers, Pump—
Diamond Joe Pump Strainers ..per doz. 75¢

Straps, Box—
Cary's Universal case lots ..20&10%

Stretchers, Carpet—
Cast Iron, Steel Points ..doz. 55@65c
Socket ..doz. $1.75

Strops, Razor—
Smith & Hemenway Co ..70%

Stuffers, Sausage—
Enterprise Mfg. Co. ..25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97 ..30%

Sweepers, Carpet—
National Sweeper Co.: Per doz.
Marion, Roller Bearing, regular finishes, full Nickel ..$24.00
Marion Queen, Roller Bearing, Fancy Veneers, full Nickel ..$27.00
Monarch, Roller Bearing, Nickel ..$22.00
Monarch, Roller Bearing, Japanned ..$20.00
Marion Queen, Roller Bearing, full Nickel ..$27.00
Transparent, Roller Bearing, Plate Glass Top, Nickel ..$27.00
Monarch Extra, Roller Bearing, (17-inch case), Nickel ..$36.00
Monarch Extra, Roller Bearing (17-inch case) Japanned ..$33.00
Perpetual, Regular Bearings, Nickel $20.00
Perpetual, Regular Bearings, Jap. $17.00
NOTE.—*Discount of 30c per dozen on three dozen lots. Discount of $1 per dozen on five dozen lots.*

Tacks Brads, &c.—
List Jan. 15, '99.
Carpet Tacks, American ..90¢25@....%
American Cut Tacks ..90¢20@....%
Swedes Iron Tacks ..90¢30@....%
Swedes Upholsterers' Tacks ..90¢40@....%
Gimp Tacks ..90¢50@....%
Lace Tacks ..90¢10@....%
Trimmers' Tacks ..90¢25@....%
Looking Glass Tacks ..70¢10%
Bill Posters' and Railroad Tack ..90¢10@....%
Hungarian Nails ..80¢15%
Common and Patent Brads ..80¢10%
Trunk and Clout Nails ..80¢5%
NOTE.—*The above prices are for Straight Weights.* An extra 5% is given Star Weights** and an extra 10&5% on Standard Weights.****

Miscellaneous—
Double Point Tacks ..90¢6 *or 7 tens*
Steel Wire Brads, R. & E. Mfg. Co.'s list ..50¢10@60%
See also *Nails, Wire.*

Tanks, Oil—
Emerald, S. S. & Co. ..30-gal. $3.20
Emerald, S. S. & Co. ..60-gal., $4.00
Queen City S. S. & Co., 30-gal. ..$3.50
Queen City S. S. & Co., 60-gal. ..$4.25

Tapes, Measuring—
American Asses' Skin ..40¢10@50%
Patent Leather ..25@35&5%
Steel ..40@40&5%
Chesterman's ..25@25&5%
Eddy's Steel ..40@40&5%
Eddy's Metallic ..33⅓@33⅓&5%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899 ..35%
Lufkin's Steel ..33⅓@35%
Lufkin's Metallic ..30@30&5%

Teeth Harrow—
Steel Harrow Teeth, plain or headed, bar per lb ..2¼c

Thermometers—
Tin Case ..80¢10@30¢10&5%

Ties, Bale—Steel.
Single Loop ..80%
Improved, Monitor, Cross Head, Etc ..70%

Ties, Wall—
Cleveland Wire Spring Co.:
Galv. Steel 5-32 x 6½ in. ₱ 1000 ..$10.00
Galv. Steel 5-32 x 8½ in. ₱ 1000 ..$11.00
Galv. Steel 5-32 x 11½ in. ₱ 1000 ..$12.00
Galv. Steel 5-32 x 15½ in. ₱ 1000 ..$14.00

Tinners' Shears, &c.—
See *Shears, Tinners', &c.*

Tinware—
Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—
See *Cutters, Tobacco.*

Tools—
Coopers'—
L. & I. J. White ..20@20&5%

Saw—
Atkins' Cross Cut Saw Tools ..40%
Simonds' Improved ..33⅓%
Simonds' Crescent ..25%

Ship—
L. & I. J. White ..25%

Transom Lifters—
See *Lifters, Transom.*

Traps— Fly—
Balloon, Globe or Acme ..
doz. $1.15@1.25; gro. $11.50@12.00
Harper, Champion or Paragon doz. $1.25@1.50; gro. $13.00@13.50

Game—
Oneida Pattern ..75¢10¢5@80¢5%
Newhouse ..45&45&5%
Hawley & Norton ..65&5@65&10%
Victor (Oneida Pattern) ..75@75&5%
Star (Blake Pattern) ..60&5@60&10%

Mouse and Rat—
Mouse, Wood, Choker, doz. holes ..8½@9c
Mouse, Round or Square Wire ..
doz. $0.85@1.00
American Pattern French Rat and Mouse Traps—
No. 1, Detroit Marty Pattern, ₱ doz. $4.50; in ⅛ gro. lots, ₱ doz. ..$4.00
No. 2, Detroit Marty Pattern, ₱ doz. $3.25; in ⅛ gro. lots, ₱ doz. ..$3.00
Detroit Marty Pattern Mouse, ₱ doz. $2.00; in ⅛ gro. lots, ₱ doz. ..$1.75
Diamond Joe Mouse Traps ..per doz. 60c
Diamond Joe Rat Traps ..per doz. $1.00
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1.12½; ₱ doz. $12.00
No. 3, Rat, ₱ doz. $6.00; case of 50 $5.25 doz.
No. 3½, Rat, ₱ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ₱ doz. $3.50; case of 72 $2.75 doz.
No. 5, Mouse, ₱ doz. $2.75; case of 150 $2.25
Schuyler's Rat Killer, No. 1, ₱ gr. $30.00; No. 2, ₱ gr. $30.00; Mouse, No. 3, $18.00 ..50%

Target—
Markle's, each ..$5.50

Trimmers, Spoke—
Bonney's Nos. 1 and 2 ..40%

Trowels—
Disston Brick and Point'ng ..30%
Disston Plastering ..25%
Disston "Standard Brand" and Garden Trowels ..40%
Never-Break Steel Garden Trowels ..gro. $7.00
Peace's Plastering ..30%
Rose Brick and Plastering ..25&5%
Woodrough & McParlin, Plastering ..25%

Trucks, Warehouse, &c.—
B. & L. Block Co.:
New York Pattern ..50&10%
Western Pattern ..60&10%
Handy Trucks ..per doz. $16.00
Daisy Stove Trucks, Improved pattern ₱ doz. $18.50
Model Stove Trucks ..₱ doz. $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$5.00*	*5.50*	*6.00*
Galvanized Wash Tubs (S. S. & Co.):			
No.	1	2	3
Per doz.	$5.25	6.00	6.75

Twine—
Miscellaneous—

Flax Twine—	*BC*	*B.*
No. 9, ¼ and ½-lb. Balls	*22c*	*24c*
No. 12, ¼ and ½ lb. balls	*18c*	*20c*
No. 18, ¼ and ½-lb. Balls	*16c*	*18c*
No. 24, ¼ and ½-lb. Balls	*15½c*	*17½c*
No. 36, ¼ and ½-lb. Balls	*15c*	*17c*

Chalk Line, Cotton, ½-lb Balls ..22@22½c
Cotton Mops, 6, 9, 12 and 15 lb. to doz ..7@8c
Cotton Wrapping, 5 Balls to lb ... according to quality ..10¼c@17c
American 2-Ply Hemp, ¼ and ½-lb. Balls ..13@14c
American 3 Ply Hemp, 1-lb. Balls ..13@14c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine) ..8c
India 3-Ply Hemp, 1-lb. Balls ..8c
India 3-Ply Hemp, 1¼-lb. Balls ..7c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls ..9@10c
Mason Line, Linen, ½-lb. Balls ..15c
No. 264 Mattress, ¼ and ½-lb. Balls ..37c
Wool, 3 to 6 ply ..5c

Vises—
Solid Box ..50@50&10%

Parallel—
Athol Machine Co.:
Simpson's Adjustable ..40%
Standard ..40%
Amateur ..25%
Bonney's ..40%
Columbian Hdw. Co ..40%
Fisher & Norris Double Screw ..15&10%
Hollands':
Machinists' ..40%
Keystone ..65&5%
Lewis Tool Co ..20@30%
Massey's Perfect ..15@20%
Massey's:
Clincher ..80@40%
Combination, Quick Adj. ..40%
Woodworker's ..15@20%
Merrill's ..20%
Miller's Falls ..50&10&10%
Parker's:
Victor ..20@25%
Regulars ..20@25%
Vulcan's ..40@45%
Combination Pipe ..55@60%
Prentiss ..20@25%
Sargent's ..40%
Snedicker's X. L. ..20@25%
Stephens' ..20@25%

Saw Filers—
Bonney's, No. 1, $13; No. 3, $16 ..50%
Disston's D 3 Clamp and Guide, ₱ doz. $30 ..25%
Reading ..60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 ..45&50%

Miscellaneous—
Bignall & Keeler Combination Pipe Vise ..60%
Parker's Combination Pipe:
87 Series ..60%
187 Series ..60&5%
No. 870 ..40%

Wads—Price Per M.

B. E., 11 up	*60c*
B. E., 9 and 10	*70c*
B. E., 8	*80c*
B. E., 7	*80c*
P. E., 11 up	*$1.00*
P. E., 9 and 10	*1.25*
P. E., 8	*1.50*
P. E., 7	*1.50*
Ely's B. E., 11 and larger	*$1.70@1.75*
Ely's P. E., 12 to 20	*$3.00@3.25*

Dis. 15%

Wagon Jacks—
See *Jacks, Wagon.*

Ware, Hollow—
Aluminum—
S. S. & Co. Reduced List ..40%

Cast Iron, Hollow—
Stove Hollow Ware:
Ground ..65%
Unground ..70%
White Enameled Ware:
Maslin Kettles ..75c10@75&5%
Covered Ware:
Tinned and Turned ..40c10@40&10c&5%
Enameled and Plain ..50@50c10d&5%
See also *Pots, Glue.*

Enameled—
Agate Nickel Steel Ware, list Nov. 1, '01 ..50&5%
Iron Clad Ware ..70&10%
Never Break Enameled ..50&5&50&10%

Tea Kettles—
Galvanized Tea Kettles:

Inch	*6*	*7*	*8*	*9*
Each	*45c*	*50c*	*55c*	*65c*

Steel Hollow Ware.
Avery Spiders & Griddles ..65&65&5%
Avery Kettles ..60%
Porcelained ..50&5&50&10%
Never Break Spiders and Griddles ..65&5%
Never Break Kettles ..60%
Solid Steel Spiders & Griddles ..65&5%
Solid Steel Kettles ..60%
Solid Steel Ware, Enameled ..50&5%

Washboards—
Solid Zinc: ₱ doz.
Crescent, family size, bent frame $3.00
Red Star, family size, stationary protector ..$3.00
Double Zinc Surface:
Saginaw Globe, family size, stationary protector ..$2.65
Cable Cross, family size, stationary protector ..$2.90
Single Zinc Surface:
Nalad, family size, open back perforated ..$2.40
Saginaw Globe, protector, family size, ventilated back ..$2.25

Brass Surface:
Brass King, Single Surface, open back $3.00
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.00

Washers—
Leather, Axle—
Solid.....85c@10c@10@85c@10c@10@10%
Patent..... ... 85@10@85c@20%
Coil: ¾ 1 1¼ 1¼ Inch.
10c 11c 13c 18c per 100
Iron or Steel
Size bolt .. 5-16 ⅜ ½ ⅝ ¾
Washers....$5.50 4.50 3.25 3.00 2.80
In lots less than one keg add ½c per lb., 5-lb. boxes add ½c to list.
Cast Washers—
Over ½ inch, barrel lots, per lb......
1½@1¾c

Washer Cutters—
see *Cutters, Washer.*

Washing Machines—
See *Machines, Washing.*

Water Coolers—
See *Coolers, Water.*

Wedges—
Oil Finish.....lb. 2.90@3.10c

Weights, Sash—
Per ton, f.o.b. factory:
Eastern District.....$20.00@21.00
Western, Central and Southern Districts.....$22.50@23.00

Well Buckets, Galvanized
See *Pails, Galvanized.*

Wheels Well—
8-in., $1.45@1.65; 10-in., $1.75@2.00; 12-in., $2.35@2.50; 14-in., $3.50@3.75

Wire and Wire Goods—
Bright and Annealed:
6 to 9 .....72½c5@72½c10%
10 to 18.....72½c10@72½c10&5%
19 to 26.....75c@1 c3½@75c10c7½@%
27 to 36.....75c10c7½@8c@3½%
Galvanized:
6 to 18 .....70@70c5%
19 to 26.....72½c5@72½c10%
27 to 36.....72½c10@72½c10c5%
Coppered:
6 to 9..... .....70c5@70c10%
10 to 18.....70c10@70c10c5%
19 to 26..... ...75c72½@75c10c2½%
27 to 36..... .....75c10@75c10c5%
Tinned:
6 to 14.....75@75c7½%
15 to 18.....72½c@73%
19 to 26.....70c5@70c5c5%
27 to 36..... .....70@70c5%
Annealed Wire on Spools..70c5@70c10%
Brass and Copper Wire on Spools, 60c5@50c10%
Brass, list Feb. 26, '96.....25%
Copper, list Feb. 25, '96.....15%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £. 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
List April 1, 1901.....85c10%

Wire Cloth and Netting—
Galvanized Wire Netting..80c20@85%
Painted Screen Cloth per 100 ft..$1.00
Light Hardware Grade:
2-18 Mesh, Plain (8c. list) sq. ft.. 1½@1¾c
2-18 Mesh, Galv. (8c. list) sq. ft. 2½@2¾c

Wire, Barb—
See *Trade Report.*

Wire Rope—
See *Rope, Wire.*

Wrenches—
Agricultural..... .....70c10@75c5%
Case lots 75c10%
Acme .....60&10%
Alligator 70%
Baxter's S.....60&10%
Bull Dog.....70%
Bemis & Call's:
Adjustable S .....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&5%
Combination Bright.....40%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....55%
Pindley Automatic.....30%
Boar Iman's.....33½%
Coes' Genuine.....40&10&5&5%
Coes' "Mechanics".....40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Elgin Wrenches.....40%
Elgin Monkey Wrench Pipe Jaws...33⅓%
Gem Pocket 30%
Hercules.....70%
Knife Handle, Machinists' (W. & B.):
Case lots.....50&10%
Less than case lots.....50&5%
Improved Pipe (W. & B.).....60%
Solid Handles, P. S. & W.....50@50&10%
Stubs " 65
Triumph .....60&10%
Vulcan Chain 30%

Wrought Goods—
Staples, Hooks, &c., list March 17 '92.....90@90c10%

Yokes, Neck—
Covert Saddlery Works, Trimmed.....60&25%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters'.. list net

Zinc—
Sheet..... .....lb 6½c@6¾c

PAINTS, OILS AND COLORS—Wholesale Prices.

White Lead, Zinc, &c.
Lead, English white, in Oil.... 7½@ 9%
Lead, American White, in Oil:
Lots of 500 ℔ or over ....@ 6
Less than 500 ℔ .... @ 6¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price..... ... @ ⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price..... ... @ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.. .. @ 1½
Lead White, Dry in bbls..... 5½@ 6
Lead, American, Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry..... ℔ ℔ 4½@ 4¾
Zinc, Paris, Red Seal, dry..... .. @ 8½
Zinc, Paris, Green Seal, dry..... .. @ 9%
Zinc, Antwerp Red Seal, dry..... .. @ 6½
Zinc, Antwerp, Green Seal, dry .. @ 8
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over.....12 @12½
Lots of less than 1 ton.....12¼@12¾
Zinc, V. M. French, in Poppy Oil, Red Seal:
Lots of 1 ton and over.....10¾@11¼
Lots of less than 1 ton.....11@11½
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors.
Black, Carbon.....℔ ℔ 5 @ 8
Black, Drop, Amer..... 4 @ 7
Black, Drop, Eng..... 7 @11
Black, Ivory..... 12 @21
Lamp, Com..... 4½@ 6
Blue, Celestial.....℔ ℔ 4 @ 6
Blue, Chinese..... .30 @35
Blue, Prussian .....28 @34
Blue, Ultramarine..... 4 @20
Brown, Spanish..... ¼@ 1
Brown, Vandyke, Amer..... 1¾@ 2½
Brown, Vandyke, Foreign..... 2½@ 3½
Carmine, No. 40..... ℔ ℔3.05@3.75
Green, Chrome, ordinary..... 5 @ 6½
Green, Chrome, pure.....19 @20
Lead, Red, bbls. ⅛ bbls. and kegs:
Lots 500 ℔ or over..... @ 5½
Lots less than 500 ℔..... @ 6
Litharge, bbls. ⅛ bbls. and kegs:
Lots 500 ℔ or over..... @ 5½
Lots less than 500 ℔..... @ 6
Ocher, French Washed..... 1½@ 1¾
Ocher, Dutch Washed ..... 4½@ 5
Ocher, American ... ℔ ton $10.00@15.00
Orange Mineral, English.. ℔ ℔ @10
Orange Mineral, French..... 11½@
Orange Mineral, German..... 8 @10½
Orange Mineral, American .... 7½@ 7¾
Red, Indian, English..... 4½@ 8½
Red, Indian, American ..... 3 @ 3½
Red, Turkey, English..... 4 @ 6
Red, Tuscan, English ..... 7 @10
Red, Venetian, Amer., ℔ 100 ℔. 50@1.50
Red Venetian, English, ℔ 100 ℔ 1.80@2.00
Sienna, Italian, Burnt and Powdered .....℔ ℔ 3½@ 7½
Sienna, Ital., Raw, Powd..... 3½@ 7½
Sienna, American, Raw..... 1½@ 2
Sienna, American, Burnt and Powdered .....℔ ℔ 1½@ 2
Talc, French..... ℔ 100 ℔ $1.25 @1.50
Talc, American..... .90 @1.10
Terra Alba, French, ℔ 100 ℔ . 95 @1.00
Terra Alba, English ..... .95 @1.00
Terra Alba, American No. 1.....65 @85
Terra Alba, American No. 2 ....45 @50
Umber, Turkey, Bnt. & Pow. ℔ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer..... . 1½@ 2
Umber, Raw, Amer..... . 1½@ 2
Yellow, Chrome .....10½@25
Vermilion, American Lead.....10 @40
Vermilion, Quicksilver, bulk .. @70
Vermilion, Quicksilver, bags... @71
Vermilion, English, Import.. .80 @95
Vermilion Chinese..... .$1.05@1.20

Colors in Oil.
Black, Lampblack..... 12 @14
Blue, Chinese..... .....36 @40
Blue, Prussian..... .32 @38
Blue, Ultramarine..... .13 @16
Brown, Vandyke..... 9½@13
Green, Chrome..... .10 @12
Green, Paris..... @24
Sienna, Raw..... ..10 @13
Sienna, Burnt..... .10 @15
Umber, Raw..... 9½@12
Umber, Burnt..... 9½@12

Miscellaneous.
Barytes, Foreign, ℔ ton....$19.00@21.00
Barytes, Amer. (coated)..... 19.00@20.00
Barytes, Crude, No. 1 ..... 9.00@10.00
Chalk, in bulk.....℔ ton 2.50@ 2.60
Chalk, in bbls .....℔ 100 ℔ .@ 35
China Clay, English..℔ ton 12.00@17.50
Cobalt, Oxide.....℔ 100 ℔ 2.25@ 2.50
Whiting, Common. ℔ 100 ℔ .40@ .50
Whiting, Gilders ..... .45@ .65
Whiting, extra Gilders'.... .55@ .68

Putty.
In bladders $2.25
In bulk..... ....2.25
In cans, 1 ℔ to 5 ℔..... .....3.25
In cans 12 ℔ to 25 ℔..... .....2.25

Spirits Turpentine.
In Southern bbls..... .....45½@ 46c
In machine bbls ....46 @46½c

Glue.
Cabinet .....11½@16
Extra White.....18 @23
French..... .12 @40
Irish..... .13½@16
Low Grade..... ℔ ℔ 9 @12
Medium White..... .14½@16½

Animal, Fish and Vegetable Oils.
Linseed, City, raw.....℔ gal..66 @67
Linseed, City, boiled..... 68 @69
Linseed, State and West'n, raw.64 @65
Linseed, raw Calcutta seed..... .. @85
Lard, Prime ..... 84 @ ..
Lard, Extra No. 1..... ....60 @62
Lard, No. 1..... .....54 @56
Cotton-seed, Crude..... .. @ ..
Cotton-seed, Summer Yellow, prime..... 43¾@44
Cotton-seed Summer Yellow, off grades..... .....41¾@42
Sperm, Crude..... .. @ ..
Sperm, Natural Spring..... .71 @73
Sperm, Bleached Spring..... .74 @76
Sperm, Natural Winter..... .75 @77
Sperm, Bleached Winter..... .78 @80
Tallow, Prime..... .60 @62
Whale, Crude..... .. @ ..
Whale, Natural Winter..... .46 @47
Whale, Bleached Winter..... .48 @49
Menhaden, Crude, Sound..... .. @ ..
Menhaden, Light Strained..... .32 @33
Menhaden, Bleached Winter...34 @35
Menhaden, Ex Bleached Winter.36 @37
Cocoanut, Ceylon..... 7¼@ 7½
Cocoanut, Cochin..... 8¼@ 8½
Cod, Domestic..... 33 @34
Cod, Newfoundland..... .36 @40
Red Elaine..... @12
Red Saponified.....℔ ℔ 6¾@ 6¾
Olive, Italian, bbls..... .52 @ 56
Neatsfoot, prime..... .58 @59
Palm, prime, Lagos.....℔ ℔ 5¾@ 6

Mineral Oils.
Black, 20 gravity, 25@30 cold test.....℔ gal. 9¾@ 10¼
Black, 29 gravity, 15 cold test. 10¾@ 11¼
Black, summer..... .....9¼@ 9¾
Cylinder, light filtered..... 14¾@17½
Cylinder, dark filtered..... 11¾@15¾
Paraffine, 903-907 gravity..... 12¾@12½
Paraffine, 903 gravity.. ..... 11¾@11¾
Paraffine, 883 gravity..... 9¼@10
Paraffine, red, No. 1 ..... 12¼@12¾
In small lots ¼c advance.

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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ENTERED AT THE POST OFFICE, NEW YORK, AS SECOND-CLASS MATTER.

CURRENT METAL PRICES.

APRIL 30, 1902.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report

IRON AND STEEL—

Bar Iron from Store—

Refined Iron:	
1 to 1⅞ in. round and square	₩ ℔ 2.10@2.20¢
1⅛ to 4 in. x ⅜ to 1 in.	₩ ℔ 2.10@2.20¢
1⅛ to 4 in. x ¼ to 5-16	₩ ℔ 2.20@2.30¢
Rods—⅜ and 11-16 round and square	₩ ℔ 2.40@2.50¢
Angles:	Cts ₩ ℔
3 in. x ¼ in. and larger	2.70
3 to 3½ in. x 3-16 in.	2.80
1¼ to 3 in. x ¼ in	3.00
1¼ to 2¾ in. x 3-16 in and thicker	2.70
1 to 1¼ in. x 3-16 in	2.80
1 to 1¼ x ⅛ in	2.80
⅞ x ⅛ in	2.90
¾ x ⅛ in	3.00
⅝ x ⅛ in	3.70
½ x 3-32 in	4.50
Tees:	
1 in.	3.20
1¼ in.	3.10
1½ in. and larger	3.00
Beams	3.00
Channels, 3 in. and larger	3.00
Bands—1½ to 6 x 3-16 to No. 8	₩ ℔ 2.40
"Burden's Best" Iron, base price	₩ ℔ 3.15
Burden's "H. B. & S. Iron, base price	₩ ℔ 2.95
"Ulster"	₩ ℔ 3.60
Norway Bars	3.75@4.25
Norway Shapes	4.00@4.50

Merchant Steel from Store—

	per ℔
Bessemer Machinery	2.10 to 2.20¢
Toe Calk, Tire and Sleigh Shoe	2.30@3.00¢
Best Cast Steel, base price in small lots	7½¢

Soft Steel Sheets—

¼ inch	2.20¢	No. 14	3.00¢
3-16 inch	2.30¢	No. 16	3.10¢
No. 8	2.40¢	No. 18	3.50¢
No. 10	2.70¢	No. 20	3.50¢
No. 12	2.90¢	No. 22	3.60¢

Sheet Iron from Store.

Black.

	One Pass, C. R. Soft Steel	R. G. Cleaned.
Nos. 14 to 16	₩ ℔, 3.45	3.50¢
Nos. 18 to 21	₩ ℔, 3.55	3.60¢
Nos. 22 to 24	₩ ℔, 3.60	3.70¢
Nos. 25 and 26	₩ ℔, 3.70	3.80¢
No. 27	₩ ℔, 3.80	3.90¢
No. 28	₩ ℔, 3.90	4.00¢

Russia, Planished, &c.

Genuine Russia, according to assortment	₩ ℔ 11@14¢
Patent Planished	₩ ℔ A, 11¢; B, 10¢, net.

Galvanized.

	B. B.
Nos. 10 to 16	₩ ℔, 12¢
Nos. 17 to 21	₩ ℔, 13¢
Nos. 22 to 24	₩ ℔, 14¢
Nos. 25 to 26	₩ ℔, 15¢
No. 27	₩ ℔, 16¢
No. 28	₩ ℔, 17¢
No. 29	₩ ℔, 19¢
No. 30	₩ ℔, 21¢

70@70&2½% off

36 in. 1¢ ₩ ℔ higher.

Foreign Steel from Store—

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 18 @ 20 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 13 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12 ¢
R. Mushet's "Special"	₩ ℔ 46 ¢
" " " Annealed	₩ ℔ 75 ¢
" " "Titanic"	₩ ℔ 19 ¢
Hobson's Choice XX Extra Best	₩ ℔ 35 ¢
Jessop Self Hardening	₩ ℔ 45 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson's "Soho" Special Self-Hardening	₩ ℔ 43 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.

	Per ℔
Banca, Pigs	29 @29½¢
Straits, Pigs	29 @29½¢
Straits in Bars	30 @30½¢

Tin Plates—

American Charcoal Plates.

Calland Grade:	
IC, 14 x 20	$7.25
IX, 14 x 20	8.75
Melyn Grade:	
IC, 14 x 20	6.75
IX, 14 x 20	8.25
Allaway Grade:	
IC, 14 x 20	6.25
IX, 14 x 20	7.35

American Coke Plates—Bessemer—

IC, 14 x 20 108 ℔	$4.90@5.00
IX, 14 x 20	$6.00@—

American Terne Plates—

IC, 20 x 28	$10.00
IX, 20 x 28	$12.00

Tin Boiler Plates, American—

XX, 14 x 26	112 sheets	$12.50
XX, 14 x 28	112 sheets	13.50
XX, 14 x 31	112 sheets	15.00

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake	13 @13¼¢
Casting	12¼@13 ¢

Sheet and Bolt—

February 2, 1902. Net.

Prices, in cents per pound. Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 50 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz., 25 to 50 lb.	24 oz. to 32 oz., 18¾ to 25 lb.	18 oz. to 24 oz., 12½ to 18¾ lb.	14 oz. and 15 oz., 11 to 12½ lb.	12 oz. and 9½ to 11 lb.	10 oz. and 11 oz., 7¾ to 9½ lb.	8 oz. and 9 oz., 6¼ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	18	18	18	18	19	20	21	24	27
30	96	72	18	18	18	18	19	21	24	27	
30	.....	96	18	18	18	18	20	24	27		
36	72	.....	18	18	18	18	20	22	25	28	
36	96	72	18	18	18	18	20	24	27		
36	120	96	18	18	18	19	21				
36	.....	120	18	18	19	21					
48	72	.....	18	18	19	21	22	25	28		
48	96	72	18	18	19	21	23	26			
48	120	96	18	18	20	22	26				
48	.....	120	18	19	21	24					
60	72	.....	18	18	19	21	24	29			
60	96	72	18	18	20	22	27				
60	120	96	18	19	21	24					
60	.....	120	19	20	22	26					
72	96	.....	18	19	21	26					
72	120	96	18	20	23	28					
72	.....	120	19	21	26						
108	96	.....	19	21	24						
108	120	96	20	22	25						
108	.....	120	21	23	27						
wider than 108	132	.....	22	24							
	.....	132	24	23							

Rolled Round Copper, ⅜ inch diameter and over, ₩ ℔ 1¢.

Circles, Segments and Pattern Sheets, 3¢ ₩ ℔ advance over price of Sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.

All Polished Copper, 20 in. wide and under, 1¢ ₩ ℔ advance over the price for Cold Rolled Copper.

All Polished Copper, over 20 in. wide, 2¢ ₩ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ ℔	22¢
12 oz. and up to 14 oz. to square foot, ₩ ℔	23¢
10 oz. and up to 12 oz., ₩ ℔	25¢
Lighter than 10 oz., ₩ ℔	28¢

Circles less than 8 in. diameter, 2¢ ₩ ℔ additional.

Circles over 13 in. diameter are not classed as Copper Bottoms.

Polished Copper Bottoms and Flats, 1¢ ₩ ℔ extra.

Copper Wire—

Hard and Soft, Drawn—B. & S. Gauge.

List Feb. 20, 1901.

Nos.	0000 to 8 Base	9 and 10		11 and 12
	½¢			¼¢ ₩ ℔ adv.
Nos.	13	14	15	16
	¾¢	¾¢	1¢	1¼¢ ₩ ℔ adv.
Nos.	17	18	19	20
	1¼¢	2¢	2¼¢	2½¢ ₩ ℔ adv.

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.

Feb. 6, 1899. Net. Outside Diameter.

Stubs' W. G.	B. & S. W. G.	⅛	5-16	¼	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3-9	...	.....	...	.....	33	31	30	29	28	27	25	24
12	10	...	.....	37	35	33	31	30	29	28	27	25	24
13	11	...	.....	37	35	33	31	30	29	28	27	25	24
14	12	...	41	37	35	33	31	30	29	28	27	25	24
15	13	...	42	38	36	33	32	31	30	30	28	26	25
16	14	...	43	39	37	34	33	32	31	30	29	26	25
17	15	...	44	4	38	35	34	33	32	31	30	27	26
18	16	61	46	42	39	36	35	34	32	31	30	28	27
19	17	62	47	41	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	68	51	46	43	41	40	39	38	37	36	35	34
22	21	71	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	71	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
36	32	29	27	21	21	21	21	21	21	21	23	23	25	27	28¢ ₩ ℔

Copper, Bronze or Gilding Tubes, 3¢ ₩ ℔ additional

Brazed Brass Tubing.

(*To No. 19, inclusive.*) Jan. 6, 1898.

Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ¾ in. up to 2 in.	$0.35
" " ⅝ " ¾ "	.36
" " ½ " ⅝ "	.38
" " ⅜ " ½ "	.41
" " 5-16 " ⅜ "	.48
" " ¼ " 5-16"	.65
" " 3-16 " ¼ "	1.00
" " ⅛ " 3-16"	1.50
Smaller than ⅛ inch	Special
2 inch to 3 inch, to No. 19, inclusive	.38
3 inch	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 3 cents.

Discount from list % 40%

Roll and Sheet Brass—

(*Brown & Sharpe Standard (Gauge.*)

Common High Brass and Wider than	in. 2	in. 12	in. 14	in. 16	in. 18	in. 20	in. 22	in. 24
and including	12	14	16	18	20	22	24	26
To No. 20 inclusive	.22	.23	.25	.27	.29	.31	.33	.36
Nos. 21 22, 23 and 24	.22	.24	.26	.28	.30	.32	.34	.37
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.33	.39

Common High Brass and Wider than and including	in. 26	in. 28	in. 30	in. 32	in. 34	in. 36	in. 38	in. 40
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.

Add 1½¢ ₩ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List 30%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gild'g bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28½
No. 17 and No. 18	.24	.28	.32
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 35%; Copper Wire, Net. List November 16, 96.

Spring Wire, 2¢ ₩ ℔ advance.

Tobin Bronze—

Straight, but not turned, Rods, ⅝ to 3 in. diameter, ₩ ℔ net	17¢
Finished Piston Rods, ⅝ to 2½ in. diameter, ₩ ℔ net	18¢

Other sizes and extreme lengths, special prices.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₩ ℔

Western Spelter 4.60@4.70¢

Zinc.

Duty: Sheet, 2¢ ₩ ℔.

600 ℔ casks 6¾¢ | Per ℔ 7@7¼¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ ℔. Pipe and Sheets, 2½¢ ₩ ℔.

American Pig	4.45@4½¢
Bar	5 @5½¢
Pipe	6½¢ 20% off
Tin Lined Pipe	12½¢ 20% off
Block Tin Pipe	37½¢ 20% off
Sheet Lead	7¼¢ 20% off

Old Lead in exchange, 3½¢ ₩ ℔.

Solder.

½ & ½, guaranteed	18½@19 ¢
No. 1	16 @17½¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson	₩ ℔ 10½@10¾¢
Hallett's	₩ ℔ 8½@8¾¢
U. S.	₩ ℔ 8½@8¾¢

Aluminum—

Duty: Crude, 8¢ ₩ ℔. Plates, Sheets, Bars and Rods, 13¢ ₩ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:	
Small lots	₩ ℔ 37¢
100-℔ lots	₩ ℔ 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:	
Small lots	₩ ℔ 34¢
100-℔ lots	₩ ℔ 33¢

Aluminum Sheet, B. & S. gauge. 50 ℔ or more

Wider than	6-in. ₩ ℔.	14-in. ₩ ℔.	24-in. ₩ ℔
And including	14-in.	24-in.	30-in.
Nos. 13 to 19	$0.42	$0.44	$0.47
No. 20	.44	.46	.49
Nos. 21 to 23	.46	.48	.51
No. 24	.46	.50	.53
No. 25	.47	.51	.54
No. 26	.47	.54	.59
No. 27	.48	.57	.62
No. 28	.48	.57	.64
No. 29	.49	.60	.69
No. 30	.50	.64	.77

Note.—Lots of less than 50 ℔ 5¢ ₩ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 9	₩ ℔ 40¢	No. 15	₩ ℔ 43¢
No. 9 to No. 10	₩ ℔ 40½¢	No. 17	₩ ℔ 50¢
No. 11	₩ ℔ 41 ¢	No. 18	₩ ℔ 55¢
No. 12	₩ ℔ 41½¢	No. 19	₩ ℔ 60¢
No. 13	₩ ℔ 42 ¢	No. 20	₩ ℔ 65¢
No. 14	₩ ℔ 42½¢	No. 21	₩ ℔ 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₩ ℔ 10 ¢
Light and Tinned Copper	₩ ℔ 8½¢
Heavy Brass	₩ ℔ 8 ¢
Light Brass	₩ ℔ 6½¢
Lead	₩ ℔ 3½¢
Tea Lead	₩ ℔ 3½¢
Zinc	₩ ℔ 2½¢
No. 1 Pewter	₩ ℔ 15 ¢
No. 2 Pewter	₩ ℔ 8 ¢
Pure Aluminum, Sheet, ₩ ℔	25¢
Cast Aluminum, ₩ ℔	20¢
Tin Plate scrap	₩ ton $5 00
Wrought Scrap Iron	₩ gross ton $13.00@13.50
Heavy Cast Scrap	₩ gross ton $12.00@12.50
Stove Plate Scrap	₩ gross ton $ 8.50@ 9.00
Burnt Iron	₩ gross ton $ 7.00@ 7.50